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Android magazine

» App reviews » Tips & advice
» Hardware tested » Hacking

Samsung | HTC | Sony | LG | Moto

NEXUS

UNLOCKED

» How to root your superphone » Boost battery
» Enhance performance » Speed up your device

**NEW
NEXUS**
5X and 6P
reviewed



MARSHMALLOW ESSENTIAL APPS

Kit your phone out with the best of Google

DROPBOX GUIDE

How you can get even more from your storage

**BUDGET
PHONES**

Can you get
premium specs
for half the price?

ALSO INSIDE

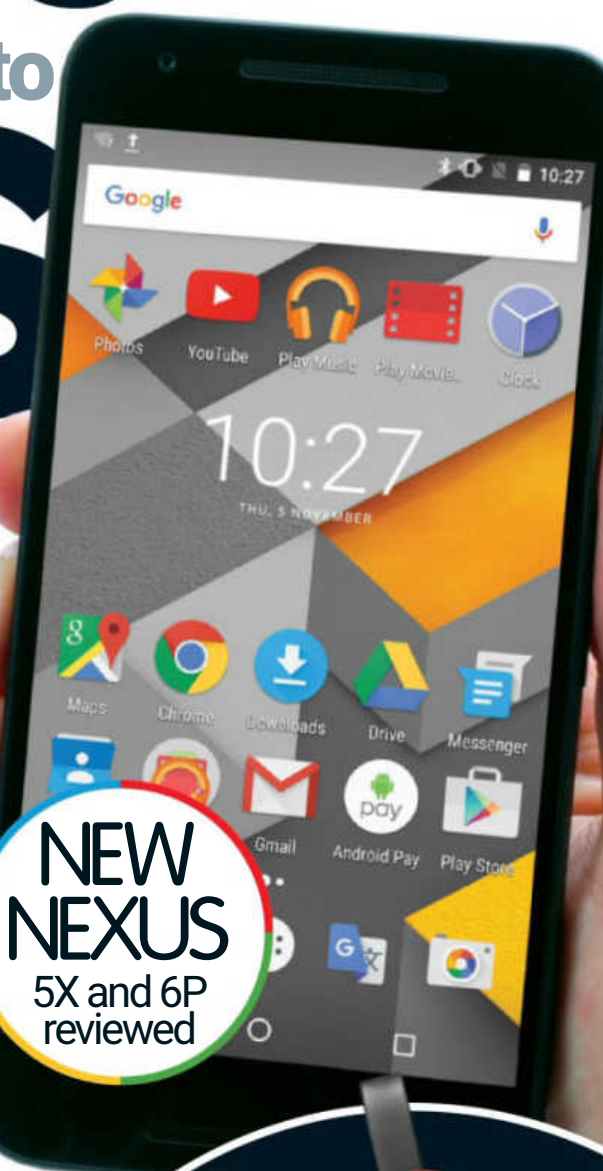
- » Filter spam in Gmail
- » Master task switching
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DigitalEdition
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ISSUE 058

CHROMECAST

The complete user guide to
Google's new streaming sticks



CANTON

THE WORLD'S BEST TV-BOOSTING SOUNDBASES JUST GOT BETTER



DM55



DM75 Glass



DM100

You're one connection away from award winning TV sound

- Sits under or in front of TV, transforming sound with powerful 2.1 stereo and surround performance
- Enjoy wireless music from all your devices via aptX Bluetooth
- Great bass: no subwoofer required
- Voice mode for super-clear dialogue
- Easy, single-cable install
- Includes learning remote
- Available in white, silver & black*

* DM100 silver & black only

Praise for Canton soundbases

[The DM55] sets the standards for affordable soundbases
What Hi-Fi? Sound and Vision

Hands down the best sounding soundbase on the market
Trusted Reviews

Reaches a level of sophistication you simply don't expect from a soundbase
Home Cinema Choice

Super-sized soundbase makes movie night unmissable with killer sound quality
Trusted Reviews

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Welcome

Nexus devices are a big deal. They are, after all, Google's vision for how Android devices should look and work. They outline the features that will headline the smartphone world for the coming year and always push the boundaries in terms of pure specs. This issue we put the new Nexus devices to the test and came up with a series of ingenious hacks to help you create the ultimate smartphone. We've explored what we think is missing in the new Nexus to truly unlock their potential. If you want a quicker device with better performance and battery life, turn to page 41 for our essential seven-page guide.

The Nexus 5X and 6P naturally headline a bumper review section, full of the latest handsets from HTC, Wileyfox and, wait for it, BlackBerry. That's right, take a look at how BlackBerry's Priv phone fairs on page 74.

Elsewhere in the magazine we've got a guide to the new Chromecast devices that explains what's new in Google's streaming sticks and how to turn your old speaker into a future-proofed Bluetooth unit. We're also looking at the best apps you need in order to get the most from Android Marshmallow on page 16.

This issue is also packed with a wide range of brilliant tutorials, including a Dropbox masterclass guaranteed to take your cloud-storage use to the next level.

Enjoy the issue!

Philip Morris

Philip Morris
Deputy Editor



MEET THE TEAM

What killer feature would you hack onto your phone?



Philip Morris
Deputy Editor

It might be obvious, but I'd be looking to improve battery life straight away. Imagine if you could get seven days out of a single charge. We can only cross our fingers.



Jamie Frier
Staff Writer

I would hack my phone to turn it into the ultimate fortress and get every security feature possible to protect it from thieves and snoopers. Turn the AR blaster into a laser, perhaps?



Adele Jordan
Production Editor

I'd love to have perfect sound quality from my phone's speakers. None of that traditional tinny sound, more like I'm listening to a live band other than my phone.



Adam Markiewicz
Senior Designer

I'd hack my phone to get better Bluetooth performance. This way it would be more stable and a lot stronger. I'd love to improve the range to help my music streaming too.

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FREE – exclusive with this issue

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» Video tutorials

» Wallpapers

Watch us get our hands on the new BlackBerry Priv smartphone

Expert video guides to follow along with this issue's tutorials

Stunning backgrounds for phones, tablets and Chromebooks

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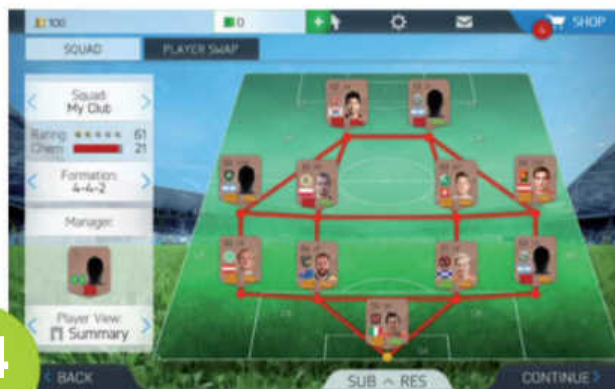
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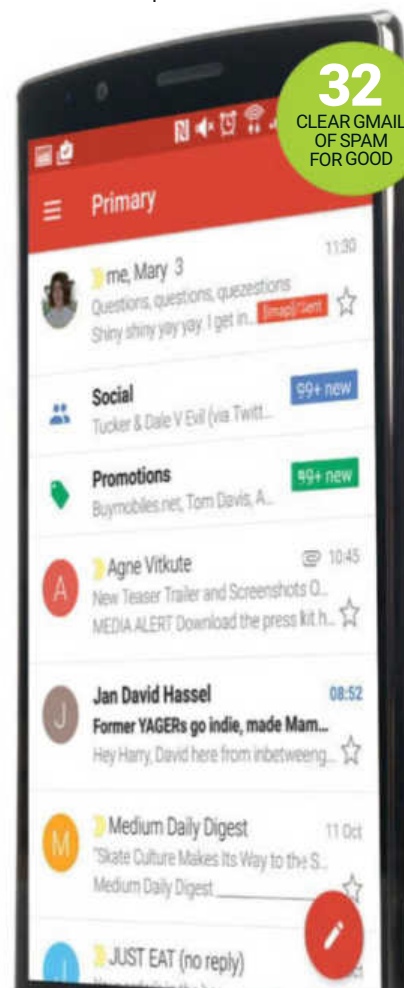
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CLEAR GMAIL
OF SPAM
FOR GOOD





Motorola's unbreakable screen breaks the mould

The world's first shatter-proof phone hits the market

If you are reading this with someone sat next to you, statistically one of you has had a cracked screen at some point in your life. This is a staggering statistic that just goes to show how fragile these devices really are that we rely on for pretty much everything.

So step forward Motorola and the ShatterShield screen. The manufacturer promoted its new invention with a short, sassy video where they dropped an iPhone, which obviously shattered, and then a Samsung Galaxy S6 that also suffered badly. Finally they dropped the latest addition to the Moto X family, the Moto X Force, which walked away without a scratch. This is because the Force

has launched with five layers of protection and a back-up touch screen, reducing both the likelihood of the screen cracking and the touch screen behind it failing. Motorola is so confident in the reliability of its new ShatterShield that it has guaranteed the display will not shatter: the screen and embedded lens are warranted against shattering for up to four years.

Gorilla Glass has been the standard in the smartphone screen world for a good while now, with nothing coming close to touching it. However, if Motorola's bold claims are accurate then Corning, the manufacturers of Gorilla Glass, could be blown out of the water.

ShatterShield will get its first outing in the Moto X Force, otherwise known in some markets as the Droid Turbo 2. This is a 5.4-inch phone powered by a Qualcomm Snapdragon 810 processor. This is the processor that was plagued with overheating concerns and with the device's thick chassis, this could indeed be a problem. The rear-facing camera will be an impressive 21MP affair while the front facing one is a reasonable 5MP.

It is also fully customisable thanks to Moto Maker, with over a thousand ways to make your phone individual. The 32GB version will set you back £499 while the 64GB model will cost £534. It launches in the USA as a Verizon exclusive under

the Droid Turbo 2 name, at prices starting at \$624. This puts it firmly in contention with the likes of the LG G4, Samsung Galaxy Note 4 and the Nexus 6P. These models all dominate the Force in terms of specs, so the shatter-proof screen is going to have to prove quite a draw to convince customers to part with that much cash for a handset that boasts only reasonable specs.

Nevertheless, a survey conducted by Motorola in the UK, USA, China, India, Mexico and Brazil has shown that 21 per cent of people currently have a cracked or shattered phone, and 23 per cent of smartphone users have continued to use their mobile even after cutting their finger on the broken screen. An indestructible screen really could prove to be a major selling point for the Moto X Force.

Unless Motorola let other OEMs buy and use their screens, Gorilla Glass with its chemically toughened glass and native damage resistance will probably still maintain supremacy. However, we've seen that Sony and Samsung are more than willing to let other manufacturers use their camera technology, so it is entirely possible that Motorola could supply screens to its rivals. Gorilla Glass's



The Force is also water resistant up to 1.5 metres



greatest boast is its impressive scratch resistance technology, but that 50 per cent of people who have cracked their screen at some point know that scratch resistance doesn't mean indestructible.

With phones becoming more essential to the average person's day-to-day life, a fully functioning mobile is crucial to both our working and personal lives. A screen that never breaks is a key part of

that, so the Motorola X Force may become a bigger player in the market than first thought.

The Moto X Force is already available in Europe and the USA alongside the Moto Droid Maxx 2, which boasts a two-day battery life but no ShatterShield screen. ■

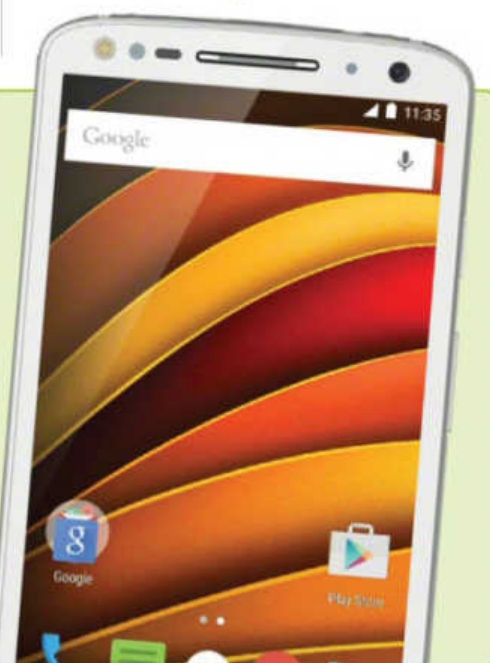
We shatter the indestructible screen illusion

So how does the ShatterShield manage to stay intact when all others have failed? It manages this magic because of its five layers of protection and a few clever tricks that eradicate the main causes of screen failures. The phone itself is a durable, aluminium core that provides the first barrier to any kind of impact. Secondly, the display itself is a flexible, AMOLED display that can bend and absorb shockwaves much more than a purely solid display could.

Instead of the usual single touch layer you'd find on most Android phones, the Moto X Force has a dual touch layer. This provides a fail-safe in case one layer loses sensitivity after a crash so that you can continue using your phone normally.

Finally the phone has an interior lens and an exterior lens to provide those final levels of protection against any kind of impacts. The interior lens is a fairly standard affair, but the exterior lens – which is the first layer that would come in contact with the ground – has a specially toughened coat that is designed to protect the rest against general wear and tear. This layer upon layer of protection with the innovation of a flexible screen and a dual touch layer is the poorly kept secret of the ShatterShield that makes the Force so resistant.

The Moto X Force's layered technology protects against any fall



10



things you need to know about... the Google Play store

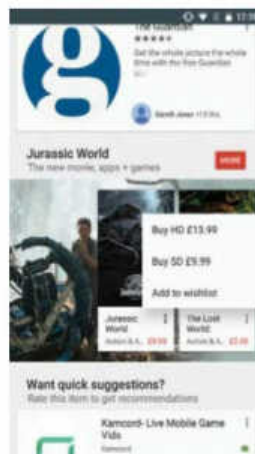
Access brand new apps before anyone else

To make sure an app is ready to be unleashed on the world, many developers will put it through a public beta in the hope that users will point out any flaws that have slipped through the developer's net. These apps are generally unlisted, but you can find them by joining a Google+ community and signing up to the beta program. The apps will be full of kinks, but you will be part of the process of removing them.



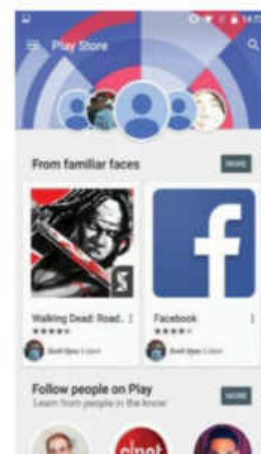
Make a wishlist

As you browse through the Play store, you might come across a film or book you want, but can't buy at the moment. Tapping on the triple-dot menu will open up the option to add that item to your wishlist for viewing later. This wishlist can be accessed by dragging across the main menu from the left of the screen then tapping on the wishlist submenu. This is a handy addition that saves you from trawling through the Play store all over again.



Friend-approved apps

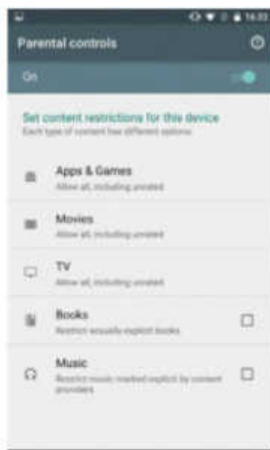
Everything seems to have a social network angle these days and the Google Play store is no different. The side menu in the Play store can be opened up to reveal a submenu entitled People. This will enable you to see apps, games and movies that people in your contacts list have rated or commented on. This should give you a much better idea of the content of apps you are thinking of downloading if people you know have reviewed them.





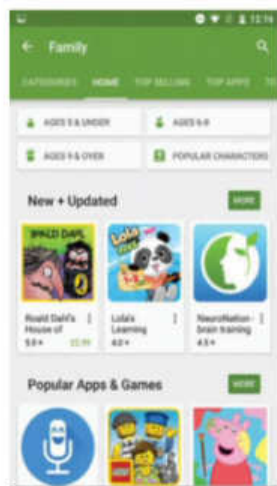
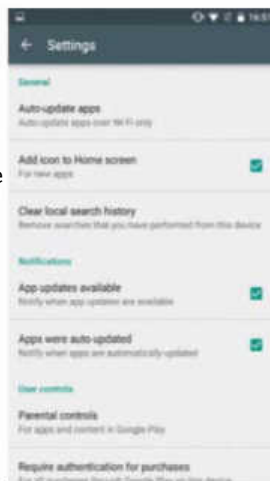
Child protected

With children increasingly using mobiles, the Play store could be a risky and potentially expensive location. Parental controls can be found in the user settings; from here you can limit what games, movies, books and music are accessible via the Play store. These settings are PIN protected and therefore can't easily be changed. These developments should make parents a lot happier with handing their phone or tablet to their child.



Time your updates

Apps regularly update on the Google Play store without your knowledge. These are background updates that can eat into your data allowance. The Settings are your place to change this. You can set apps to update as soon as an update is available, only over Wi-Fi or never. This can save both on 3G allowance and battery power as updating the apps on the Google Play store can take quite some time and processing power to complete.



Family friendly

There was a real focus in the latest update to the Google Play store in making it a safe place for young people to be. The introduction of the family star badge is intended to make parents aware of the suitability of an app at a glance. Certain apps can be granted a family

star badge if their content is considered appropriate for kids to access. This includes highlighting games that are supported by adverts or in-app purchases.

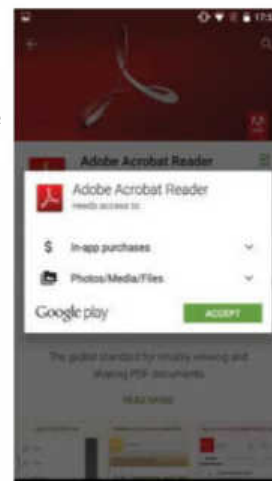
Buy with the touch of a finger

One of the major developments of Android Marshmallow was the standardisation of fingerprint recognition. If you have a phone that runs Android 6.0 and also has a fingerprint scanner, you are now able to make purchases on the Play store just by using your fingerprint to prove you are the owner of the account. You can set up multiple fingerprints to let another person use this feature. This should be safer and quicker than a password.



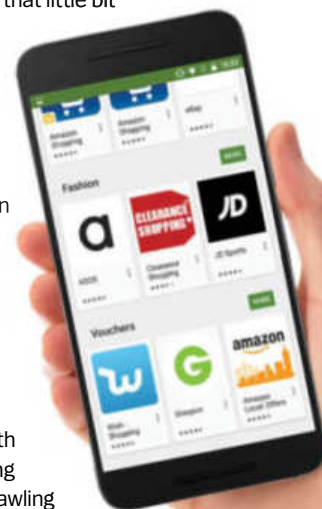
Restricted permissions

Downloading from the Google Play store is now a little bit quicker and easier with Android Marshmallow. The new granular permissions setting means that upon download an app will only ask for the very essential permissions. Therefore when downloading an app there are only a handful of permissions you will have to accept before you are able to use it, so if you prefer to double check what areas an app can access before downloading then you are in luck.



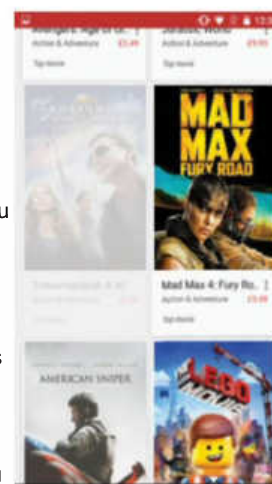
Intelligent searching

Searching has become that little bit smarter in the latest update to the Play store. Typing in search terms doesn't just bring up related apps, but also specific categories. If you type in the search term shopping, or apps such as eBay and Amazon, you will now see a coupon category high on the list. This means you can find results more in tune with the activity you are doing instantly, rather than trawling through dozens of categories.



Hide unwanted content

If you are scrolling through the Google Play store and come across something you aren't particularly interested in and don't want to see again, such as a gossip magazine, it is easy enough to remove this and ensure Google doesn't offer it to you again. Tap the triple-dot menu in the corner of the app and then the option to hide it from your list. This will make the icon pale and prevent it from appearing again.



NEW TECH | 360-degree photography

Ricoh Theta S

The world's first 360-degree camera can now shoot incredible panoramic video

The Ricoh Theta was a revolutionary device enabling users to instantly shoot a full 360-degree photo thanks to its two wide-angle cameras on the front and back of the stick.

Ricoh has followed up this excellent innovation with the new Theta S, which is capable of filming up to 25 minutes of panoramic video. This is a technically challenging and very important step forward for the product as it further increases the 'never miss a moment' attraction.

The Ricoh Theta S app, which can be downloaded from the Google Play store, acts as a portal for you to view the images you're recording in real time. This is so you won't have to suffer the disappointment of uploading your footage only to find you had completely missed all the interesting action.

Ricoh has bumped the internal storage up to 8GB. This is enough to hold around 1,600 large images, 9,000 medium-sized images, 65 minutes of 30fps video or 175 minutes of 15fps video. The Theta S is capable of recording up to 25 minutes of video at a time, so that could substantially eat into the limited storage space available.

At a glance

- » **Product name** Ricoh Theta S
- » **Available from** www.theta360.com
- » **Price** £299.00/\$346.95

A thin stick-like camera that is capable of taking instant 360-degree photos and videos.

Flagship quality

The f/2.0 aperture on the Theta S is comparable to the latest Android flagship phones (as is the 14MP resolution). It's designed to let in plenty of light to illuminate your photos and videos

Take it with you

At 44mm wide, 130mm high, 22.9mm thick and 125g in weight, this really is a very portable device that is light and slim enough to slip into your jean pocket alongside your phone

Stack your photos

You are able to split the screen between the two cameras, so instead of a panorama you can take two individual photos and stack one on top of the other



Take full 360-degree panorama pictures to capture every aspect of the moment you don't want to forget

Sleek and simple

The body has been redesigned with a black rubber coating and LED lights to tell you if you are hooked up to Wi-Fi



Q & A



Jonathan Martin, general manager, UK & Ireland, for Ricoh Imaging Europe

When designing the Theta S, what was the most important area to change or improve on from the first Theta?

A We originally created the Theta series to change the way people view and connect with the world around them, [we did this] by providing a way of capturing things they can't normally see. When developing [the] Theta S we wanted to make the 360[-degree] experience even more enjoyable and expand the product's usability with higher-resolution images and full HD-quality movies.

What were the main challenges you faced when making the new Theta S?

A There are currently other products on the market that can take 360-degree panoramic shots or 180-degree hemispherical shots. We worked very hard to make the Theta S the only device [on the market that] is able to capture full 360-degree spherical shots, take high-resolution images and HD movies, whilst being compatible with iOS and Android devices. All at an affordable price.

What had you learned from the Theta that you were able to use in the Theta S?

A As the compact/SLR digital camera market is nearly saturated, the product

was developed to leverage Ricoh's strength in optical technology to create a new market [of its own].

How did you manage to strike the balance between weight and portability versus battery life and size of the camera?

A We aimed to find a balance between these two features [that] we know our customers look for in a product.

Have you ever considered adding SD card support to the Theta?

A There are no plans for adding an SD card slot at this stage.



GALLERY OF... THE ONE BILLION CLUB

1 Gmail

Google's email service was the very first app to top one billion downloads. It achieved this feat back in May 2014, nearly a month ahead of its closest rival. It looks slick, is easily navigated on mobile and is a huge bonus to those with Gmail on their desktop.

» Price: Free

2 Maps

The second app to reach the one billion download milestone was Google Maps. The navigation app has made getting from A to B much easier as it provides routes and instructions directly on your mobile that continually update as you progress.

» Price: Free

3 YouTube

YouTube's success is very impressive considering that once upon a time it didn't always come pre-installed on our Android phones like many Google apps did. The biggest video-sharing site in the world hit one billion downloads in July 2014.

» Price: Free

4 Facebook

The first non-Google app on the billion download list is the world's biggest social media website. It was the fourth to hit that mark and has also since seen its dedicated messenger app cross the same billion-download threshold.

» Price: Free

5 WhatsApp Messenger

WhatsApp was already an extremely successful messaging app before Facebook snapped it up for \$19bn (£12.4bn) in February 2014. Just over a year later it joined the billion-download club, despite being the first app on the list to charge.

» Price: Free + IAPs

6 Google Play Movies & TV

The most recent app on the list to have over one billion downloads is Google Play Movies & TV. This app enables you to download films and television shows directly from the Google Play store to watch on your Android mobile.

» Price: Free



Meet the new Chromecast

All new Chromecast, but still the same amazing products thanks to Google's latest wave of devices

The prevalence of the Chromecast in Google's bid to takeover your living room is clear for all to see. While the original device sold a whopping 20 million units, Google is aiming to double that number with the new revamped Chromecast.

It's undoubtedly a tough ask for the HDMI stick to complete, especially considering the now increased competition from a whole array of other Android products. The likes of the Roku 4 and the

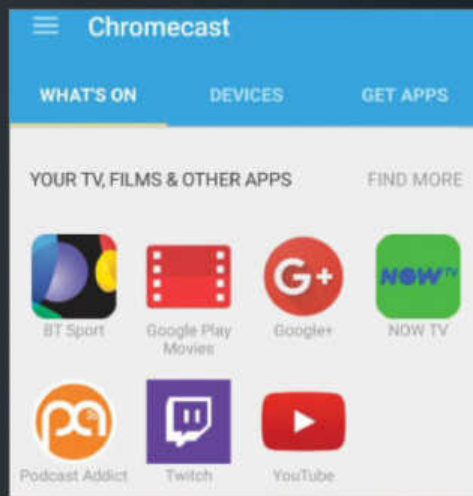
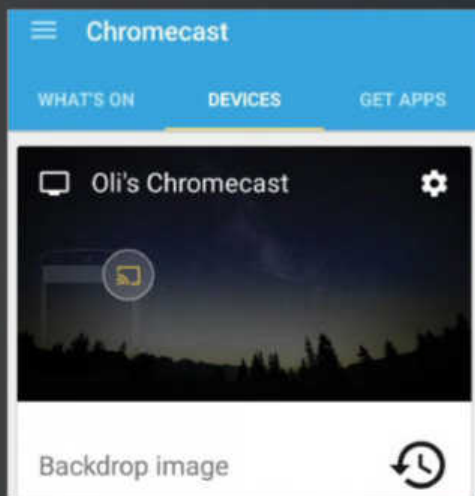
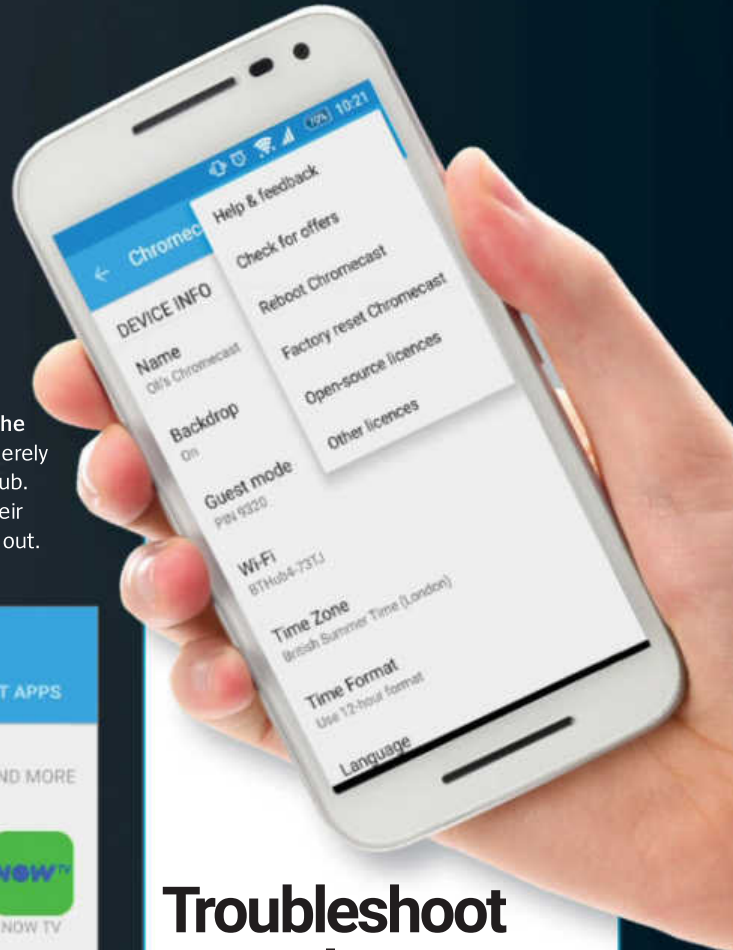
Amazon Fire TV Stick have been fairly successful additions to the market since their launch and they have snapped up many of the users who may have been in a quandary over whether to purchase a Chromecast or not. While the new range from Google has some fantastic new features to behold, which we'll come on to later, it's the launch of the Chromecast Audio that will be a mouthwatering prospect for many Android users.

It's important to remember that not all speakers have all the modern features we have become accustomed to, but the Chromecast Audio brings these ageing speakers into the here and now. Keep reading and you'll find all the information you need on both the new Chromecast and the Chromecast Audio, as well as a handy guide on the recently updated Chromecast app, available for free from the Google Play store.

Master the new Chromecast app

The new streaming hub has a whole host of new features for you to explore

Although owning a Chromecast is one thing, it won't be possible to use it if you don't have the trusted Chromecast app installed on your phone or tablet. While its previous offering was merely there to initially set up the HDMI stick, the new app has developed into an all-in-one media hub. Users will be able to use the app to discover all the compatible media that's stored within their device or Google Drive, while there are links to other apps and services that you can also try out. Check out some of the app's best new features in the steps below.



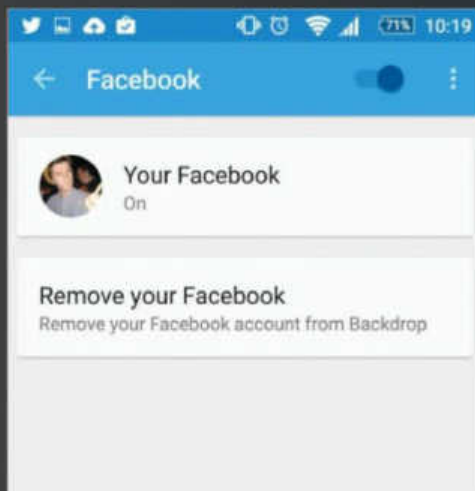
Troubleshoot your Chromecast

As with any new product to hit the market, there were some noticeable teething problems to be found within the Chromecast. Dodgy connections, incompatible media and Wi-Fi woes occasionally reared their ugly faces and most users were left scratching their head with how to fix it. While we can't promise that the new Chromecast won't occasionally cause you problems, the accompanying app is now a much better place to help solve and troubleshoot any of your issues. By opening up the Device Information section within the settings menu of the app, users have quick access to an option for rebooting their device – a surprisingly handy feature to have available. If you then discover numerous problems, the Factory Reset option is your best bet to fix it.

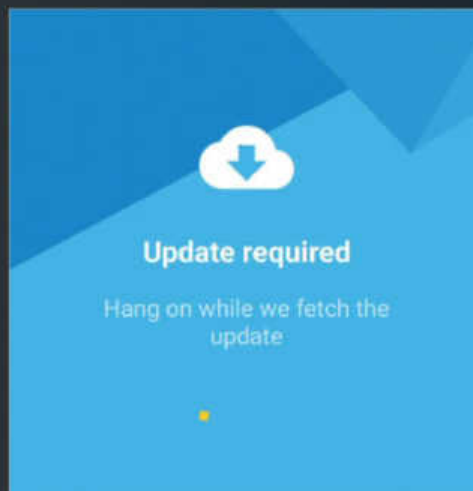
“As with any new product to hit the market, there were some noticeable teething problems to be found”

1 Manage your device
The Devices tab will be your home when you need to toggle the various settings of your Chromecast. To access your settings, simply press on the gear icon that can be found in the top right-hand corner of the page.

2 Compatible apps
Open up the What's On tab to see all the compatible Chromecast apps you have on your device. The icons shown act as direct shortcuts to the relevant app where you should be able to instantly check out their Chromecast functions.



3 Sync with social media
Users are now able to add their social media albums as the backdrop to their Chromecast home display. Both Facebook and Twitter are supported, but there are plans for more social media apps to be gradually added.



4 Stay updated
The new app also has a useful update system so that when Google push out a new update for the Chromecast, the app can take away all the stress and do it automatically for you. Updates can even be added with the app closed.



Should I upgrade my current Chromecast?

Upgrading any device can be a big deal and it's a decision that some shouldn't take lightly. In regards to the original Chromecast, it was without doubt a solid, well-built and ultimately useful product, but it did have its faults. One of the great things about the revamped version is that it quashes all the fundamental issues that plagued the original, making it a far more intuitive, usable and stable product than before. If you've experienced little trouble with your current Chromecast, there's no major reason to upgrade, but for those seeking a better stream, snap one of these up right away.

The best Chromecast yet

Better Wi-Fi support and revamped design make the new Chromecast a tempting prospect

While there hasn't been a massive swathe of features added to the new Chromecast, there has been a good number of minor updates that have refreshed and tweaked some of the weaknesses that had been weeded out from the original. First and foremost is the new look of the Chromecast: it's slightly lighter than the original and a new puck shape has been used to contain the brand new Wi-Fi sensor. Eagle-eyed users among you may soon spot the adaptive antenna that's also been used within Chromecast to help maintain

(hopefully) steadier streaming speeds. The new antenna is an ideal way to keep your video resolution continuously at its peak level, while making sure buffering is kept to an absolute minimum – a pesky problem that once plagued numerous Chromecast owners in the past. Casting is quicker, there are more compatible apps than ever before and, best of all, it still has that very low price point that enticed millions of users the first time around. Is there really any reason why you shouldn't buy one?

Next generation Chromecast apps



Plex Free + IAPs

For locally stored movies on your device, Plex is one of the few media servers that supports Chromecast. Users can directly stream films across to their television, but also manage playback controls on their device.



AllCast Free

Made by the team ClockworkMod, the AllCast app is capable of casting absolutely anything and everything from your device to your TV. It's the ideal app for enjoying your personal images on the big screen.



CastOnTV for Instagram £1.08/\$1.99

Instagram is yet to add support for Chromecast, so you'll need to rely on CastOnTV for a substitute. Users are able to log in to their account and manage their daily photo feed.

Add Wi-Fi capability to any old speaker

Turn any speaker into a new smart speaker with the all-new Chromecast Audio

Before the rise of wireless streaming, you were fairly restricted in the ways you could listen to your favourite tracks on what are now affectionately known as dumb speakers. The Chromecast Audio (CA) is aimed at those people who dare not part with their favourite speaker and instead want to bring it into the modern age. Largely the same shape and size of the Chromecast, the CA plugs directly into either the Optical, RCA or 3.5mm jack on the speaker. After a few minutes of initial

connection through the Chromecast app, you're good to go. One of the things that could potentially worry some users will be regarding the sound quality, but let us quash those worries for you. Streaming through the CA is faultless and depending on the bitrate of the song you're streaming, you'll be able to enjoy high-fidelity audio no matter where you are in your home. Plus, don't forget that the RRP for the Chromecast Audio is a mouth-watering £30, so what are you waiting for?



The best music apps for Chromecast



Spotify Free

While Spotify tries to iron out a few of the kinks for its planned Chromecast support, Spotify is currently the best alternative. It connects with your Spotify account and includes a simple cast function to stream any playlist, album or individual track through your connected speaker.



Music Player: Rocket Player Free + IAPs

For all your locally stored music make sure to use the Rocket Player app when you decide you want to cast it across. It has a unique queueing system to help create a personalised playlist that can be edited in just a few seconds. You can improve the audio quality via the built-in equaliser too.



Rdio Music Free

Live radio apps are in abundance on the Google Play store, but not many have Chromecast support. One of the few that does is the Rdio app, a long time favourite of Android Magazine. Casting high bitrate streams is easy and the improved Wi-Fi module means buffering is minimal.



Google Play Music Free

Out of all the apps with Chromecast support, Play Music is arguably the best. It contains full playlist and album support, while the equaliser can be used to edit audio settings on the fly. Plus, Google's self-curated playlists are some of the best around.

Set up Chromecast Audio

A simple step-by-step guide to bring your 'dumb' speaker into the 21st Century

1 Power up

Connect the Chromecast Audio to a power source via the microUSB slot. A white light should appear on the top of the Chromecast, letting you know that it has successfully powered on.

2 Connect to the speaker

Now connect the CA to your speaker. Users can choose to either use the accompanying 3.5mm cable, an optical lead or even an RCA cable. Both the optical lead and RCA cable don't ship with the CA.

3 Start casting

It may take a few minutes to get the Chromecast Audio to recognise the speaker, but once it does, you're ready to go. Open up any audio app on your phone and look for the cast icon to start streaming.





ESSENTIAL APPS FOR MARSHMALLOW

What apps to use to avoid having problems with the new Android OS

Marshmallow might just be the saviour of Android. Lollipop proved to be a mixed success as people mostly loved Material Design yet hated the immense battery drain that many experienced. This was often because third-party apps weren't optimised for the sweeping changes made by Android 5.0 and phones had to put in extra effort to run these apps effectively. Unfortunately, there wasn't a lot that developers could really do other than scramble to make tweaks and fix bugs

caused by the huge changes that Lollipop brought. Optimising apps for the new system has to be a priority for Google and third-party app developers.

As Android 6.0 is a much more incremental change than Lollipop, users shouldn't experience quite as many problems because a major focus of this update is to eradicate the bugs that littered the previous build. However, there will be a few teething problems, as there always is, especially with apps as developers get to grips with the new

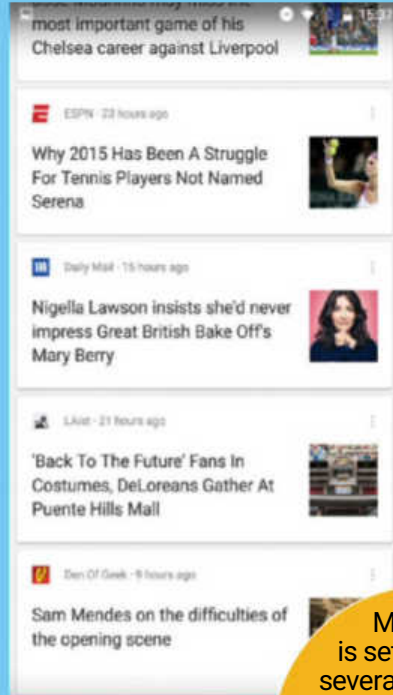
system. We have done our research and found pre-installed and third-party apps that should create the fewest problems for any phone with Marshmallow, causing you much less hassle.

Whether it is a specific update for Marshmallow or a development that just happens to have come at the same time as the new operating system, these apps and services should be able to work seamlessly with your Nexus, HTC A9 or any other handset on which you have flashed Android M.

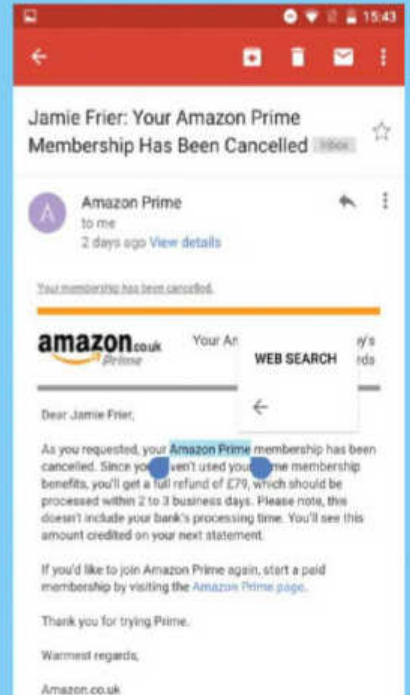
g Enjoy Google Now on Tap

Marshmallow's virtual assistant should work like a charm

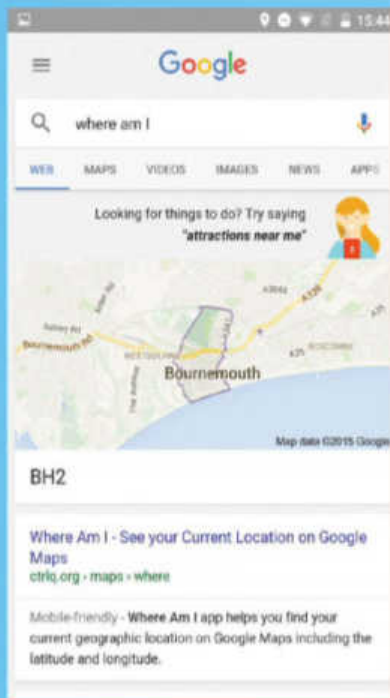
Google Now has been around since 2012 and Android 4.1 Jelly Bean. Since then it hasn't really evolved that much, apart from the style in which your news bites are delivered. However, because there wasn't much in the way of headline-grabbing changes in Marshmallow, something had to be done. In line with Marshmallow's ethos, Google Now hasn't fundamentally altogether changed the way it works, but it has added an extra layer of functionality that will make the lives of Android users much easier. Google Now on Tap is the ideal companion to Android Marshmallow as it is easy to use, sorts out a number of previous problems and, most importantly, actually works! It might not be entirely up and running, but it's already doing a better job.



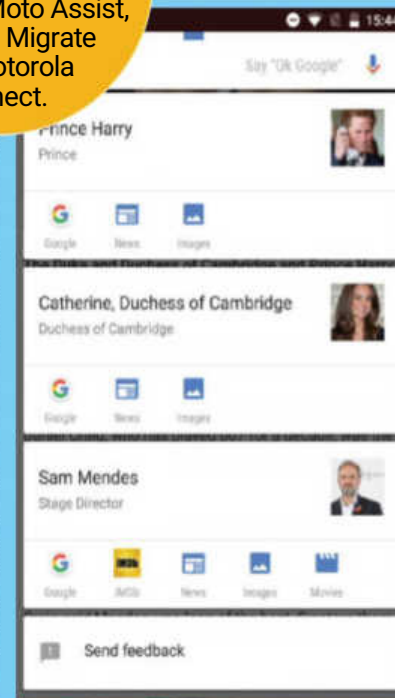
Android Marshmallow is all about making life easier for the user. Doze and the new permissions system are shining examples of speeding things up and optimising everything as much as possible. Google Now on Tap made use of Google's Advanced Neural Network (ANN) to become a lot more intelligent and intuitive. This is why it is able to understand what you are asking, even when you are being massively and unhelpfully vague. The program sends the request through to Google's servers where it works out what you are asking based on what is on your screen or where you are. It then relays the information to you via a drawn-over Google search without exiting the app you're in.



Motorola is set to cut off several services in the wake of the Marshmallow update. These are Moto Assist, Motorola Migrate and Motorola Connect.



The ability to tap on a word and get a web search about that topic is a feature that is currently only available in Google's Chrome browser, so don't go tapping and holding in other apps just quite yet. You do get the option to perform a web search in certain other apps, such as Gmail, but this isn't as quick or as well designed as Marshmallow's headline function. Nevertheless, the fact it is here at all is exciting and shows Google's commitment to making little tweaks to their existing products. While Google Now On Tap is quite possibly the best mobile personal assistant on the market, the fact it is an intelligent extension of an existing Google service is very Marshmallow.

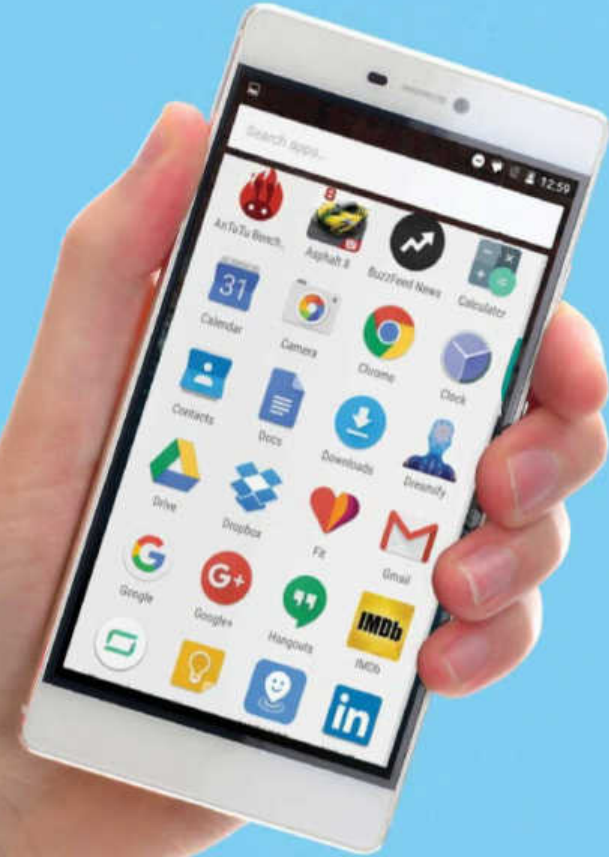


Now, while you can only perform specific searches in Chrome, the general Google Now On Tap page searches can be performed anywhere. Press and hold on your home button and the service will search everything on screen and give you a pop-up with the results. It will also suggest what apps you could open the information up in. For example, if you are on a webpage that's about *Spectre*, pressing and holding the home button will bring up the name of the film as well as suggesting you open it in the IMDb app, should you have it installed. With Chrome custom tabs and apps automatically deciding which app is best for you to open links in, Android Marshmallow is taking a lot of the thinking and navigation out of the Android mobile experience.

“ In line with Marshmallow's ethos, Google Now hasn't fundamentally changed the way it works altogether ”

Use Google Drive

Make the most of Google Drive's brand new storage facility

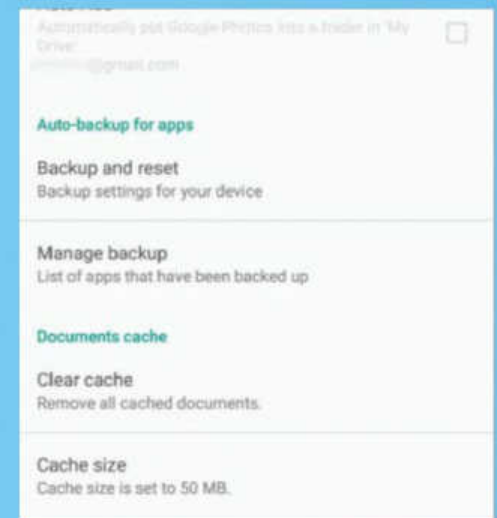
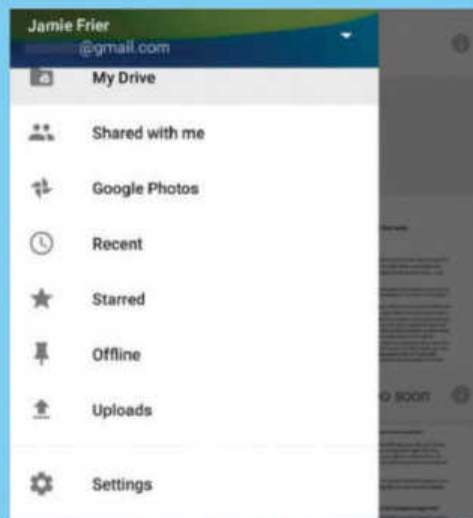


A headline feature of Android Marshmallow was the ability to auto backup your data by syncing with your Google Drive account. This mass storage service will keep all of your important files, photos and numbers safely stored on Google's server so if you lose your phone or if it breaks you should be able to restore everything just by accessing your Google account.

This is a new feature for Android Marshmallow, as previously any kind of backup had to be

manually actioned and it is far too easy to forget to do it yourself so often. This daily fail-safe will only take place over Wi-Fi; it's also encrypted so it should be totally safe from being hacked and it won't eat into your Google Drive allowance. Overall, it's a win-win situation.

This tutorial will show you how to manage the apps that are automatically backed up to Google Drive and illustrate how to restore your account should you lose your phone.



1 Find Google Drive

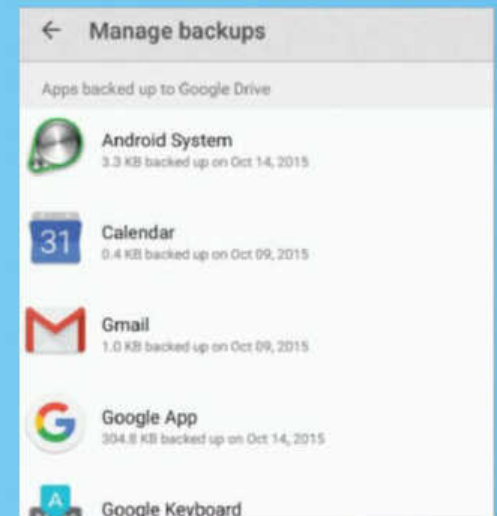
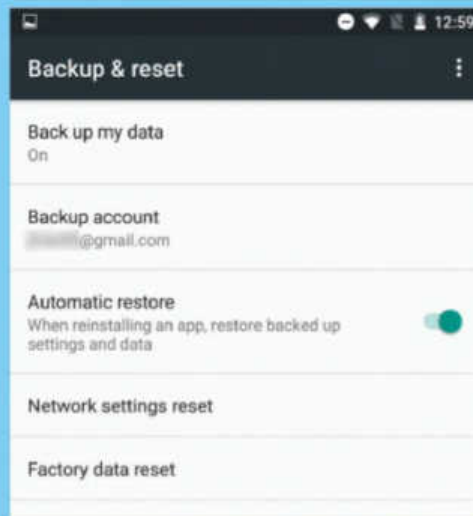
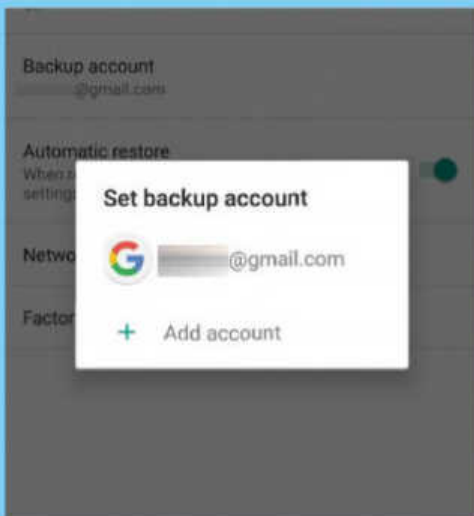
Head into your app drawer, scroll down until you find Google Drive and click on it. It should be pre-installed on your phone, but if it isn't you can download it from the Google Play store.

2 Enter your settings

Once you are in the app, pull across from the left-hand side of the screen as this will bring up the Google Drive menu. Scroll down until you find Settings and tap on that.

3 Google Drive settings

This screen contains all the details you need to know about the Google Drive Auto-backup. To make some space in the cache, either clear it or increase the cache size.



4 Set a backup account

Tap on Backup and reset. Once in this menu, tap on Backup account. This will give you the option to back your data up to the phone's associated Google account or add a new one.

5 Automatic restore

If you are switching phones or want to delete an app only to reinstall it with your existing data, tap Automatic restore and Google Drive will add all your data back once reinstalled.

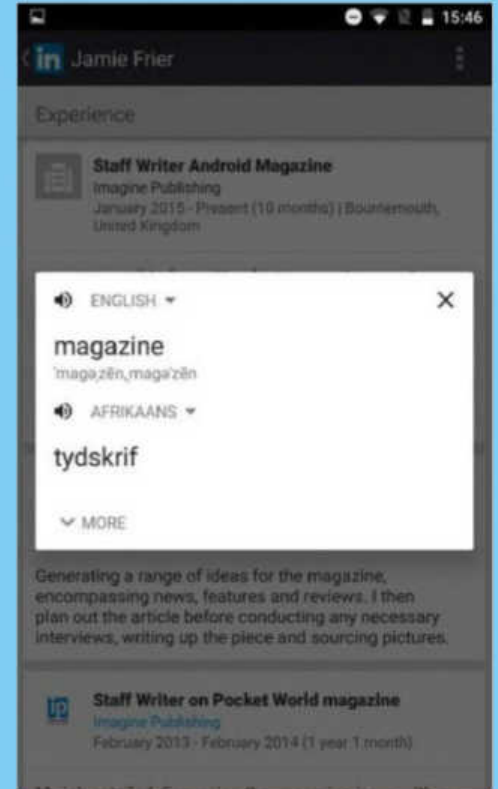
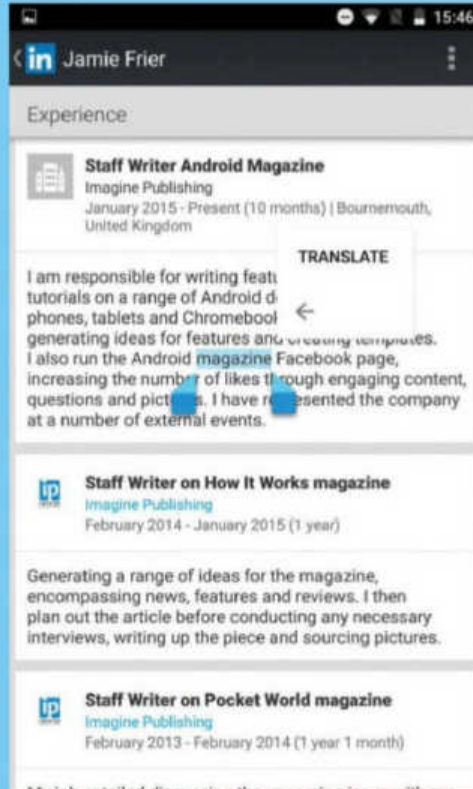
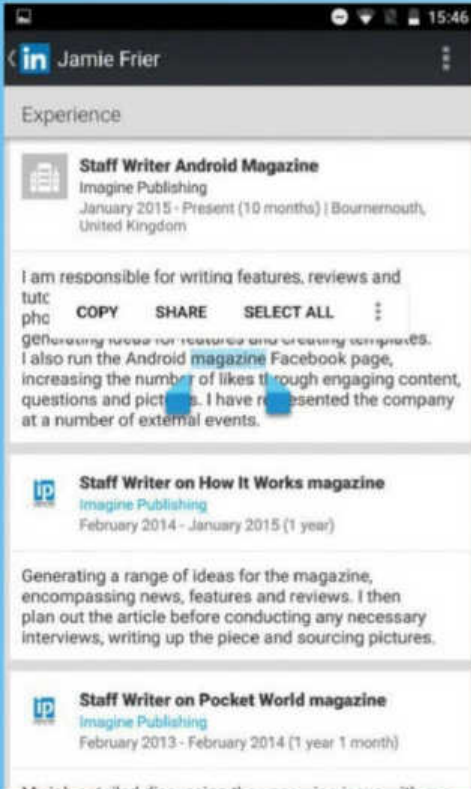
6 Manage your backups

Head back into the settings and tap Manage backup. Here you can find all the apps that have been backed up on Google Drive. This will tell you just what is safely stored.



Translate text in apps

Google Translate now works inside your apps



1 Select the unknown word
You can now translate certain languages without leaving your app. If you come across an unfamiliar word, press and hold the text. Use the sliders to select all the required text.

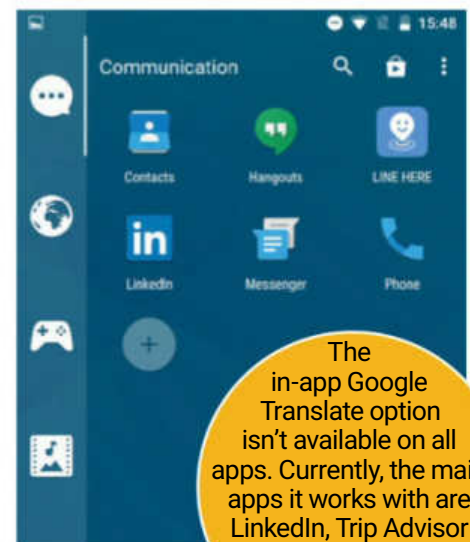
2 Find the translate option
Once you've selected the text, you will see a menu pop-up that offers the option to cut, copy or share the text. Tap the triple-dot menu and Translate will appear.

3 Translate the text
Tap on Translate and an information box will pop up on your screen from where you can choose which language to translate to, all without leaving the app you are in.

Get a Marshmallow-optimised launcher



With the latest version of Android came a brand new permissions system where access to your phone's private information would only be granted as and when it is required. However, apps that are already on your phone have already been granted all the permissions when they were first downloaded. If you want a customised launcher that includes Marshmallow's new system, give Smart Launcher 3 a go. This conforms to the new protocol so it is great for those of you that want an extra bit of privacy and don't like your phone's existing launcher. Download it from the Google Play store or, if you have already got it, uninstall the app and then re-install it. Keep an eye on the Play store to see which apps have been updated to the new permissions system so you can fill your phone with safe, nonintrusive apps.



The in-app Google Translate option isn't available on all apps. Currently, the main apps it works with are LinkedIn, Trip Advisor and WhatsApp with more expected soon.

Three updated apps for Marshmallow



App Lock: Fingerprint & Password

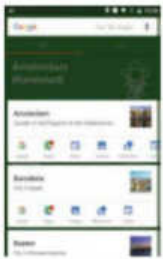


This secure lockscreen is designed to keep individual apps safe, rather than act as a cover for your phone in general. The PIN or pattern will block access to certain apps on your phone, so it's basically an added level of

security. It is also handy if you give your phone to someone else and don't want them accessing particular apps. It has been updated to include support for Android Marshmallow and will also accept fingerprint scanning on Samsung phones.



Citymapper – Real Time Transit



Citymapper is an excellent app that provides instant travel advice for major cities around the world. It has been made Marshmallow ready in the latest update and already works with Google Now On Tap. It

also conforms to Android 6.0's granular permissions system and links will open automatically in the app, so you no longer have to confirm you want to use it. The auto backup is also set so you will never lose your favourite places even if you lose your phone.



Wunderlist: To-Do List & Tasks



One of the most popular to-do lists on the Google Play store is Wunderlist and it is one of the earliest apps to make itself compatible with Marshmallow. Not only does Wunderlist enable you to make attractive

memos, but it also makes it easy to share them. This is why it will work so well with Google Now On Tap's quick-search function as your friends can easily understand what is on your list. The auto backup will also be a handy feature in case you lose your mobile.

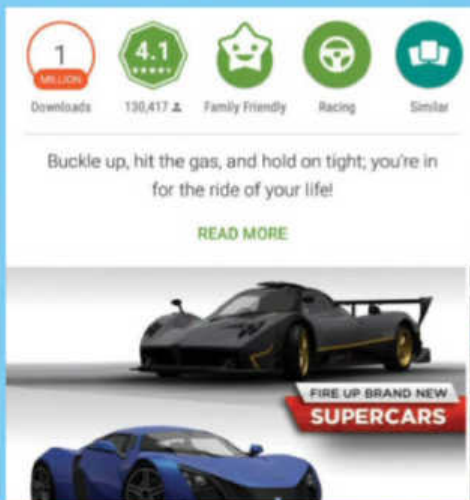
The new family-friendly Google Play store

Know at a glance if apps are suitable for your children



The Google Play store has had a major overhaul in time for Android Marshmallow. The key changes have

been geared towards making the store a safer and more transparent place to download apps. The Family Star is a way of showing parents that an app, film or game is suitable for children so they can make decisions about what apps they can let their kids download. This is an excellent innovation that can show at a glance if an app has been officially certified as appropriate for children to use unattended. As with the rest of the updated Google apps, this change has made life that little bit easier for Android users as parents can now happily sign off on apps that their kids want to download without having to scroll through all the information.



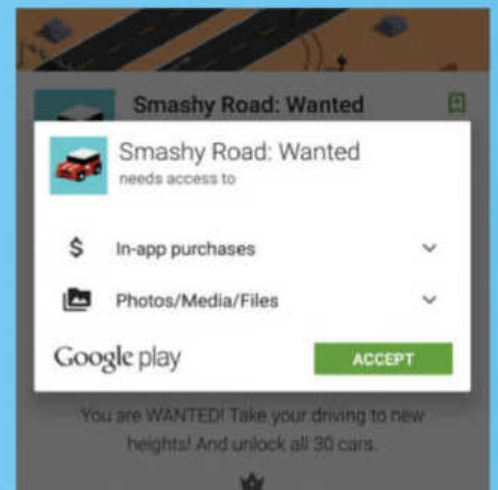
Fingerprint integration has been a key part of the Android Marshmallow update as the fingerprint technology within Android handsets has been standardised.

This makes them much more reliable and therefore they can be used for secure processes such as Android Pay. This added security means you can authorise payments with just the touch of a finger, removing the need for remembering yet another password. As well as making life a little easier, it makes it safer as well. If someone else has hold of your phone, whether with your permission or not, they won't be able to buy any apps or make certain in-app purchases without you literally giving it a thumbs up. Fingerprint authorisation has potentially made the Google Play store a much less expensive place.



Security has been a key issue for Android following a number of reports about the amount of malware and

spyware that finds its way onto Android devices. The update to Android 6.0 has prompted a two-pronged attack on security flaws with the stricter fingerprint identification mentioned above and the new granular permissions. This new way of downloading apps from the Play store and only giving them essential permissions has made the practice of downloading apps much safer for users because they don't have to give blanket permission to app developers who could steal their data. Apps that are already on your phone and have been updated to the new granular permissions system can be uninstalled then reinstalled with only essential permissions.



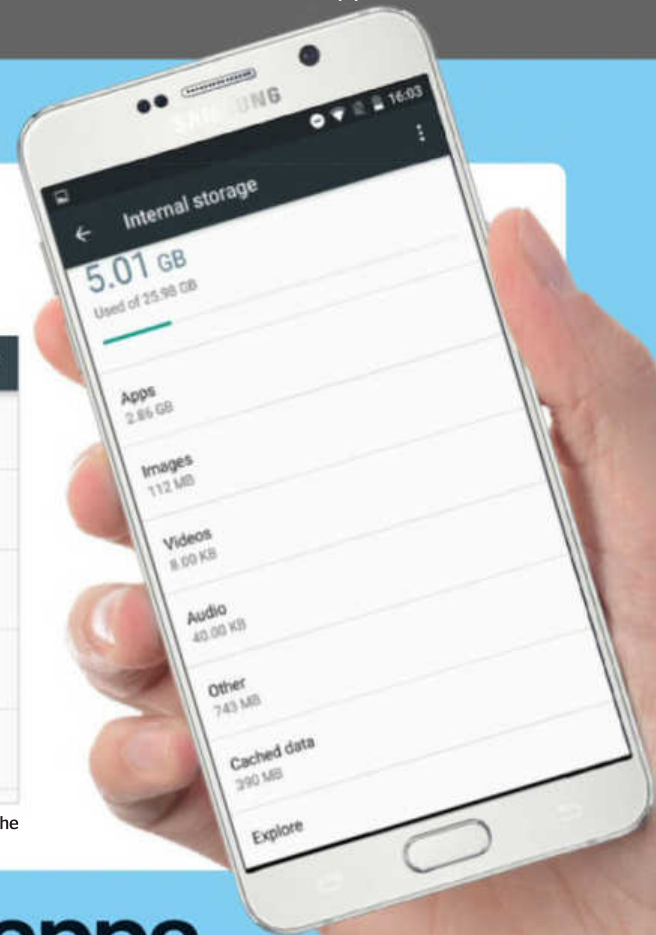
Explore your file manager

Remove the need for any third-party file management apps

A new feature of Android Marshmallow that was rather overlooked was the new file manager. Previous iterations of Android had you scrabbling around looking for your photos, downloads and app folders, seemingly scattered around your phone's memory at random. This has now been corrected, meaning that the best app for organising the files on your Android phone is now no longer an app! You can find your files after a little bit of a search by heading first into your Settings. Then scroll down to Storage & USB, scroll further down to Explore, tap on that and you'll find a list of everything currently saved on your device's internal memory. It may still need some work, but it's great that we finally have a native file manager to replace third-party apps from the Google Play store.

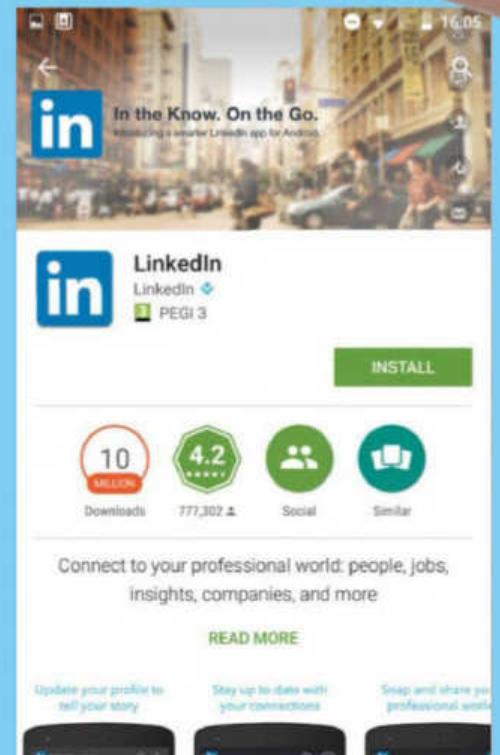
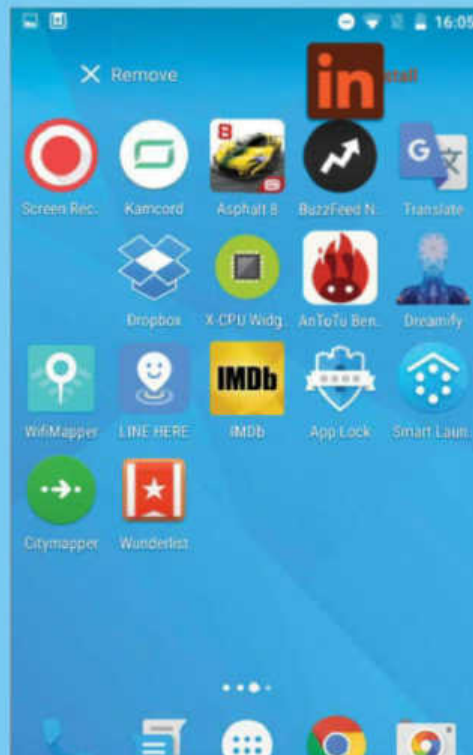
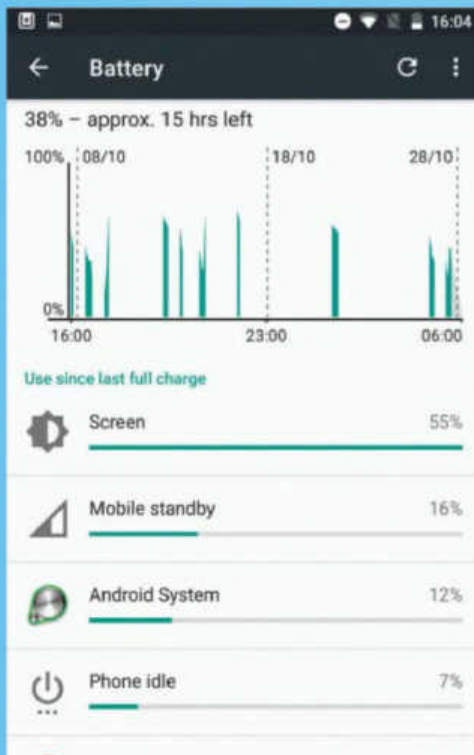


Marshmallow's new integrated file manager eliminates the need for a third-party app



Manage troublesome apps

How to deal with apps that drain your battery or simply struggle to work



1 Locate problem apps

Certain apps that haven't been optimised for Marshmallow can drain your battery. The first step is to find the guilty apps by entering the Settings, tapping Battery and checking usage.

2 Delete apps

Your best bet will be to delete the app and then reinstall it from the Play store, as you may not be running the latest version. Tap and hold on the app then drag to Uninstall.

3 Reinstall the app

Head into the Google Play store and type the name of the app into the search bar. Tap Install and it will reinstall the app, hopefully with all of the updates and bug fixes.

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» masterclass

Get more from Dropbox

Use these hints, tips and tricks to make sure you're using your cloud storage in the best way

Dropbox has been around for a while now and in that time it's become a lot of people's go-to app for cloud storage. There are plenty of good reasons for that, not least because of how well the app integrates with your Android device. In this masterclass we're going to try and get under the skin of Dropbox and show you the best ways to add cloud storage into your everyday Android routine. Hopefully we'll be able to show you something you've not seen before then shed some light on some of the settings and

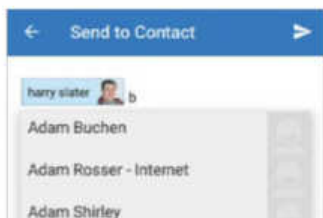
options you might be using regularly. We'll show you how to save files for offline access, walk you through some neat features that will ensure you never lose a photo again and discuss whether a Dropbox Pro account is really the best way for you to go or not. We'll even suggest some tips for file naming and folder distinctions. There won't be anything particularly challenging here, but for some of it you might need a computer close by in order to sync your folders and check that everything is working properly.

More handy tips

Three more hints to get your Dropbox account working just the way you want it to

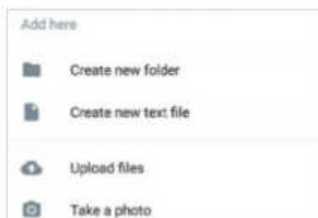
Share to multiple people

Tap the arrow next to the file's name then go to send a link. Select Send to Contact then add multiple names or addresses as you would if you were sending an email.



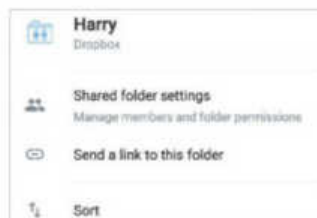
Make a new folder

To make a new folder or to get one from your computer, just tap on the large plus button in the bottom right-hand corner of the screen. This will open a list of items you can create.



Change the sharing settings

Shared folders have a different icon. To change the settings, open the folder then tap the arrow in the top-right corner to see who has access and who can edit the files within the folder.



Should you go pro? Here's the pros & cons

1. It will cost you

Is it worth getting a Dropbox Pro account? That depends on what you want to do with Dropbox. If you only use it for photos and the odd document then it is likely to be a waste of money.

2. Flexible and more secure

If you're using it for business reasons, the Pro account will give you more flexibility and a good deal more security. You can add passwords and time constraints to your documents to ensure the right team members can see them.

3. Made for work

You can still share documents with external members of your team, but you don't have to give them access to all of the files. It's a cleaner approach and one that utilises Dropbox as a platform for work instead of just storage.

4. Change access settings

It's simple to add and revoke access as well. As soon as you delete a team member, they can no longer see what's on the account. This means that you don't need to worry about sensitive data ending up anywhere you don't want it.

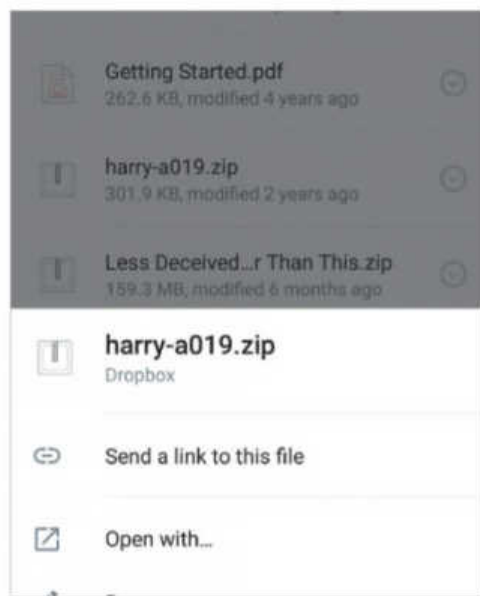
5. 30-day free trial

If you're not sure whether it's going to benefit you then sign up for a free 30-day trial to give the features a go.

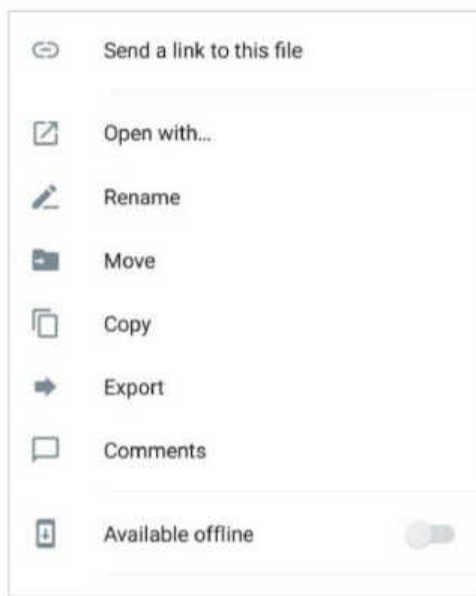
Save your files offline

A timesaver when you can't connect to a Wi-Fi signal

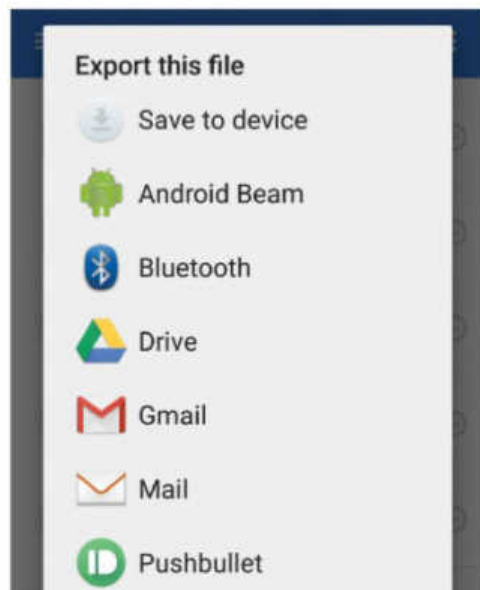
We've all been in situations where the internet connection isn't as stable as we might like yet we've needed to get access to something on our online storage. If you plan ahead and follow these tips this won't be a problem for you.



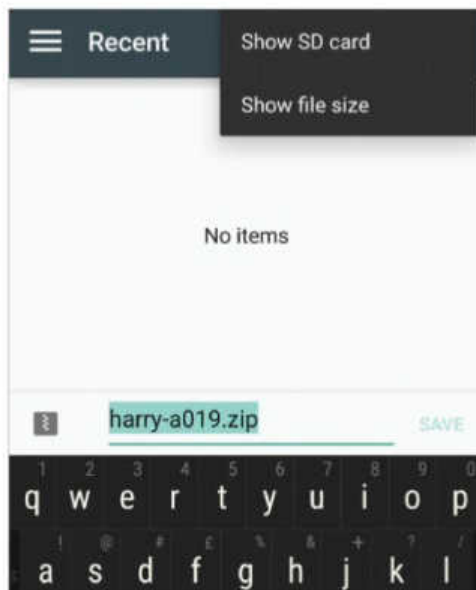
1 The favourite method
Bear in mind you'll need to perform this tutorial with an internet connection, so planning ahead is essential. Know what you need and you're half way there. First find the file that you want to make available offline in your Dropbox folders.



2 Flip the switch
Tap the arrow next to the file you want to save then scroll down the list of options to the switch marked Available offline. Toggle this into the on position and the file will download. Now you can access it even if you're not connected.



3 Or you can export
Another way to save your files is to export them to your device. In the options list, scroll to the Export button then tap it. You'll be given a number of options. The top one should enable you to save the file to your device.

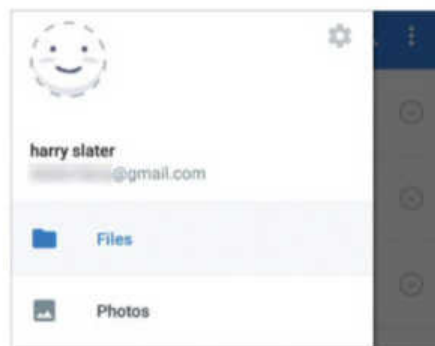


4 To the SD card
If you want to save your file to the SD card, tap the menu button on the right when you're choosing where to export, then tap on Show SD card. Now you'll be able to move the file to your external storage. Simple.

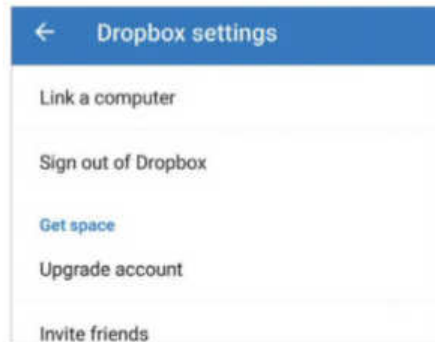


Dropbox's Camera upload will store all of your photos in the cloud without you having to lift a finger

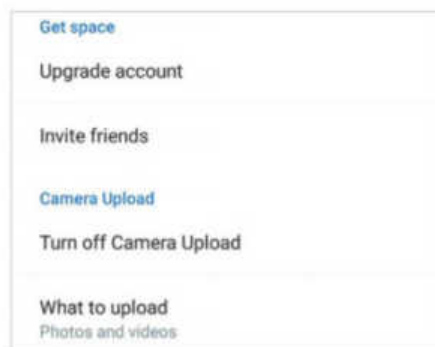
Never lose a photo again



1 First open up the Dropbox app and then tap on the menu button on the left-hand side of the screen to open up your account options and settings.



2 Tap the grey cog on the right-hand side of the slide-out menu to get access to the settings for your device, then scroll down the list that opens.



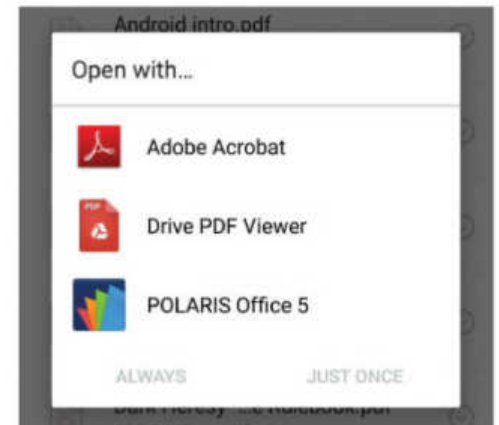
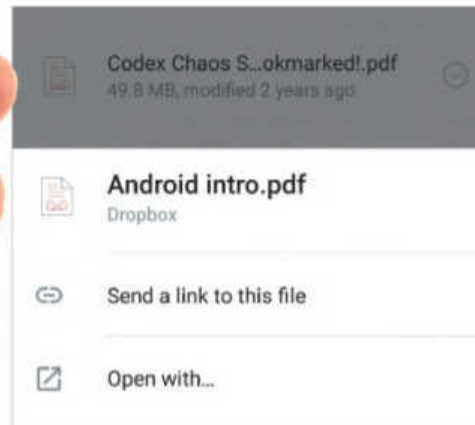
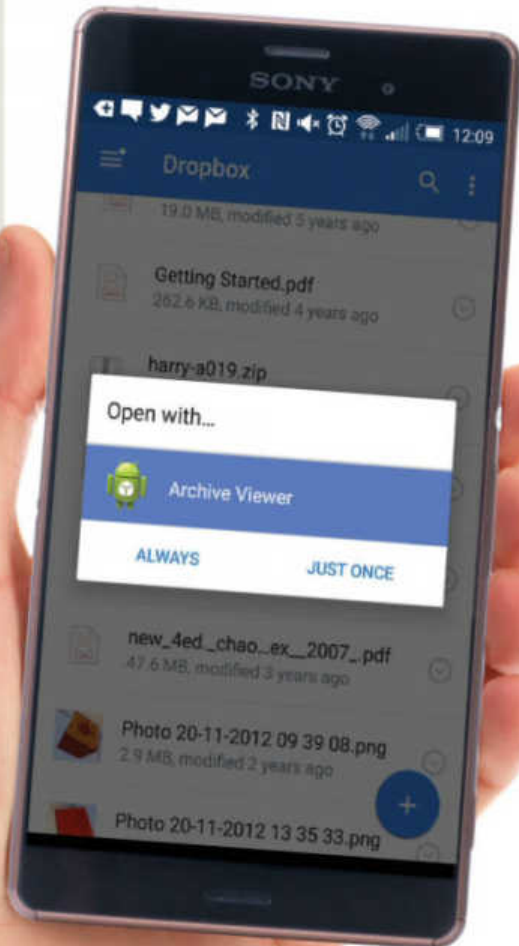
3 Tap to turn Camera upload on, choose whether to upload videos as well and what data connections you want to use to upload the files when they've been taken.

Manage apps that open by default

Clear and set defaults to ensure you're opening your files in the right apps

There's a good chance that your Dropbox account is going to have been with you for a while by now. Most Android devices come with some extra storage boosts as standard and that means as you upgrade your device and the apps you use, your settings are likely to change. In this tutorial we'll look at how to make sure you're always using the best apps for the job and how to reset the defaults if you install something new or just decide that you

want to try a different way. You can do it all from within the app as well rather than changing the default settings on your Android device, which is handy. It's also a really good way to figure out what apps you don't use much; this should help when it's time to clear up some storage space and make your device run a little smoother. You can delete your defaults at any time and set new ones by following the steps laid out here.

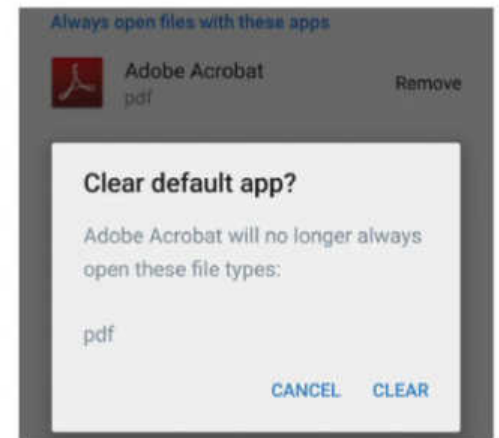
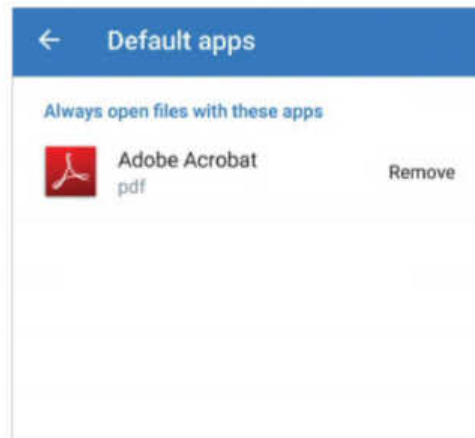
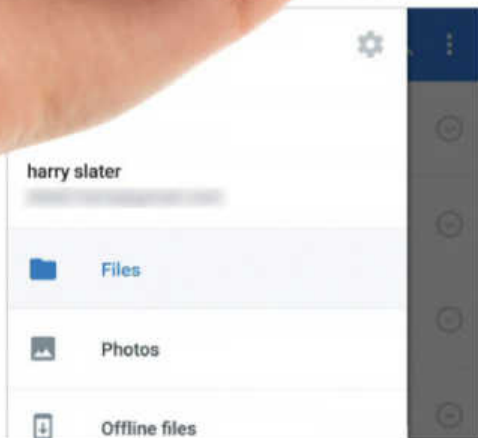


1 How to set a default

If you want to set a default app to open your Dropbox downloads in, you need to do it from your list of files. Find the file you want to change and then tap the arrow next to it. Then tap on the option marked Open with.

2 Choose the app

You'll now be given a list of apps that you can use to open that kind of file. Choose the one you want from the list and tap Always. You'll get a pop-up alerting you how to clear defaults. Tap to confirm your choice.



3 How to clear a default

To clear a default app you have set, you need to go into the Settings menu. Open up the menu and tap on the grey cog on the right-hand side. Now scroll down to an option called Default apps and tap on that.

4 Choose the app to kill

You will now see a list of the apps that you have previously set as your default apps. Scroll through this list to find the particular one you want to get rid of then tap the Remove button to the right of the app's name.

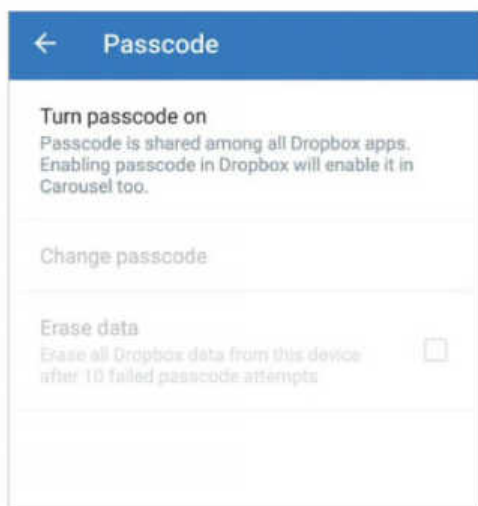
5 Confirm the termination

You'll get a pop-up asking you to confirm the clearing of the default option. It'll show you which kind of file the app is the default for and then give you the chance to cancel or clear. Tap clear and you're done.

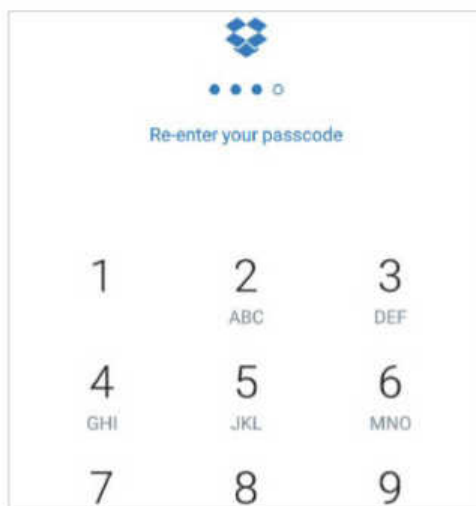
Secure your files

Add another layer of security to all of your important Dropbox files by protecting them with a secure number passcode

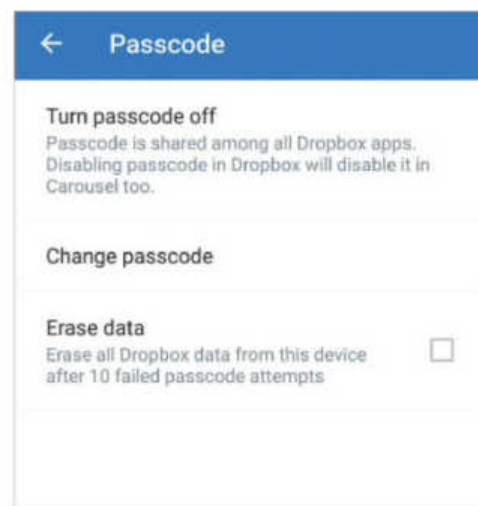
If you're worried about losing your phone or having it stolen and losing control of your Dropbox account, you can add a passcode to your apps to ensure that anyone trying to access your account is going to have a mighty tough time doing so. As an added bonus, you can set your app to erase all the Dropbox data from your device if anyone enters an incorrect passcode ten times. So it's probably best to make sure you use a memorable number, otherwise you might end up wiping all of your data by accident. This passcode will apply to all Dropbox apps.



1 Look in the menu
Head into the Settings menu again and then scroll down to Advanced features. It's about half way down the list, below the Camera Upload section. There will be an option marked Configure Passcode. Tap on that to get things started.



2 Enter your code
Tap on the option that turns on the passcode protection. You'll need to type in a four-digit number twice to get everything set up. When you're done, you'll need to put the number in every time you open Dropbox.

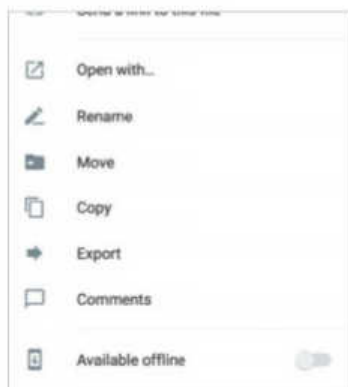


3 Some extra options
You can change the passcode any time you want and you can also tap the check box to choose to erase your data. If you use a passcode to unlock your phone, it's a good idea to use a different one for your Dropbox account.

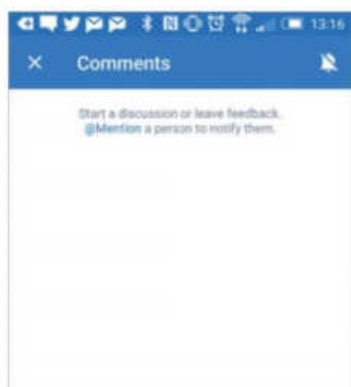


Add comments to your files

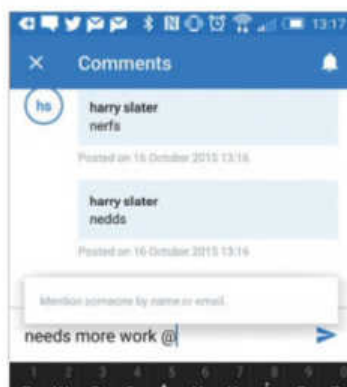
Put your own comments on your files or share them with your friends and co-workers



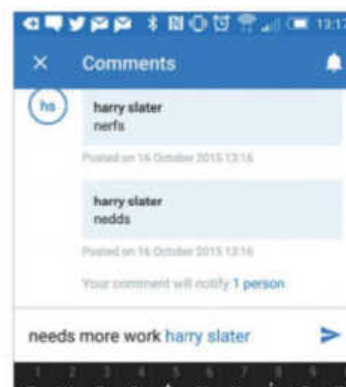
1 Add comment
You can add comments to any of your files quickly from within the Dropbox app. First tap the arrow next to the file you want to make a comment on and then scroll down to the Comments option with a speech bubble icon. Tap on it to open it up.



2 Private comments
If there are no comments then you'll see a blank screen with a text box at the bottom. This is where you can type in your notes or comments. If you don't want anyone to be able to see them, type them in as you would anything else.



3 Share comments
However, if you want to share the comment, you can use an @ system to tag them. This uses your contacts database to find the right people and then notifies them of the comment if they've turned notifications on for Dropbox.



4 Tag friends
You can @ the person from anywhere in the message; when you type the symbol and the first letter of a person's name, you'll get a series of options based on your contacts list. Then just add the comment as normal.

App used » WhatsApp Messenger Works with » Android 2.1 and up

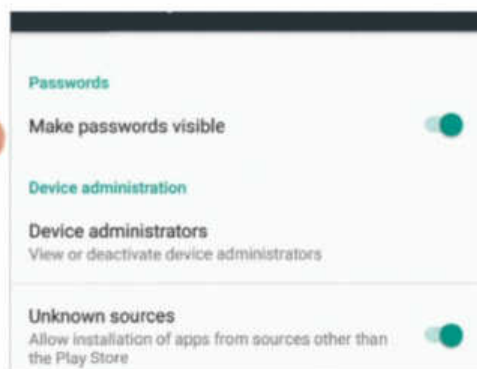
Back up your WhatsApps to Google Drive

Store your instant messaging chats on Google Drive to keep your conversations safe

WhatsApp Messenger is the most downloaded messaging app on the Google Play store with over one billion downloads, so it's a little surprising that it's taken until now for the app to offer a backup service for its users' messages.

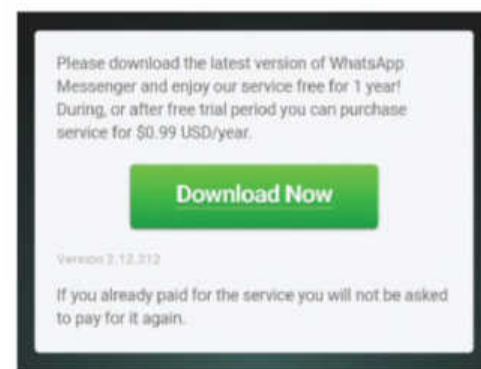
WhatsApp can now store your message threads on Google Drive so if your account is deleted or your phone is lost, you can restore all of your messages with just a few clicks.

The service should be rolling out to all phones soon, but there is a way to gain early access to this feature by downloading the WhatsApp APK. This will even work if you've already got WhatsApp downloaded, so you don't need to worry about deleting the app and reinstalling it. You will then have peace of mind that you won't lose all of your conversations if something goes wrong with your phone or account.



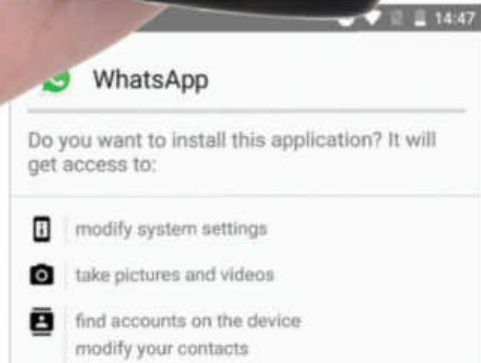
1 Unknown downloads

Pull down the Quick Settings menu and tap the cog. Scroll down until you see Security and tap on that. Scroll down again until you see the slider that currently prevents you to download from anywhere other than the Play store. Tap the slider so it turns green.



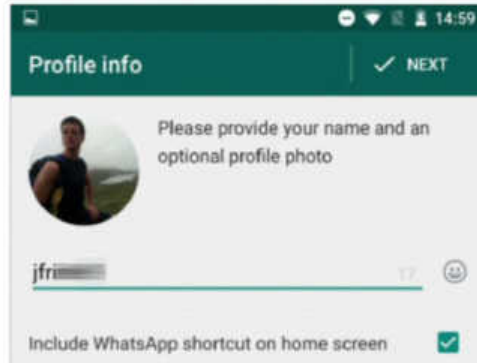
2 Find the APK

Open up your web browser and go to whatsapp.com/android. Press enter and it will take you to the Android WhatsApp messenger APK. Tap on the Download Now button and the APK will start to download. You can still do this even if you already have WhatsApp downloaded.



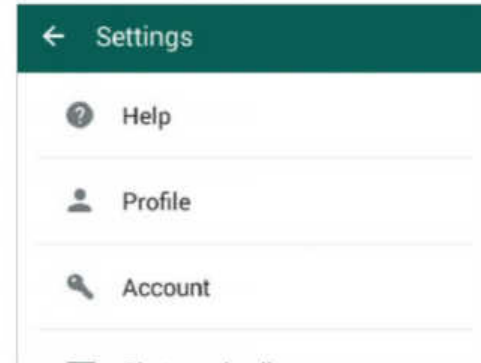
3 Install WhatsApp

After it has downloaded, follow the steps on the screen to install WhatsApp on your phone. Accept the various permissions, agree to the terms and conditions and the app will then install on your phone. For those of you with WhatsApp already, it'll just be like a normal update.



4 Set up the account

Go through the steps to set up your account, such as linking your WhatsApp account with your phone by sending a verification message and setting a profile picture. The app will automatically sync with your contacts list, provided you've given it that permission.



5 Enter WhatsApp settings

Tap the triple-dot menu in the corner of the app or the menu button if you are running a version of Android that is older than 5.0 Lollipop. Tap on the Settings menu and this will bring up a range of submenus from where you need to tap Chats and calls.

1 Set your status

Tap the Settings menu and select Status to let friends and family know if you are free.

2 Send to all

Set up a Broadcast List in the settings. This sends all your selected recipients the same message.

3 WhatsApp on your desktop

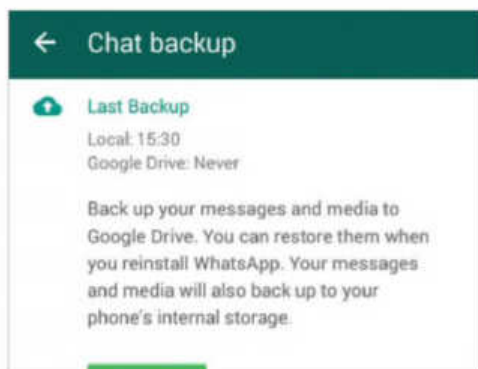
Access WhatsApp via Chrome by visiting web.whatsapp.com, then scan the QR code and sync devices.

4 Delete conversations

Delete all your messages via Chats and Calls>Chat history then selecting Delete all chats.

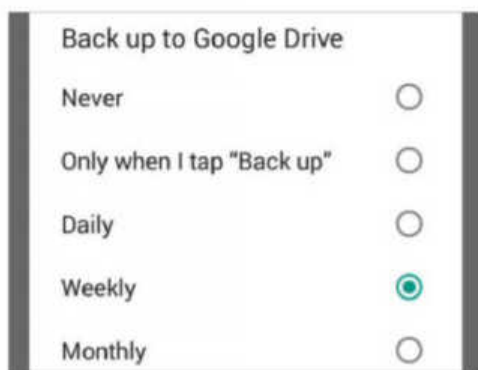
5 No more read receipts

Banish that treacherous blue double tick in WhatsApp's Privacy settings and turn off Read receipts.



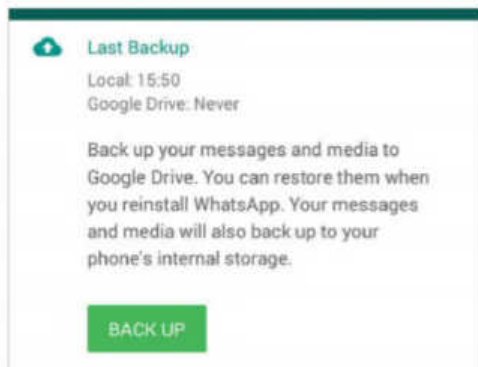
6 Chat backup

Once you're in the Chats and calls menu, tap Chat backup. This will bring up the menu for your Google Drive message backup service. It gives you all the information you need regarding your backup settings. Tap Back Up to immediately save your conversations to Google Drive.



7 Set backup parameters

Syncing takes a lot of time and battery power so you might not want to regularly back up your messages. Tap on the Back up to Google Drive menu and choose when you want the app to sync your messages with Google Drive. This can easily be changed by tapping on the menu again.



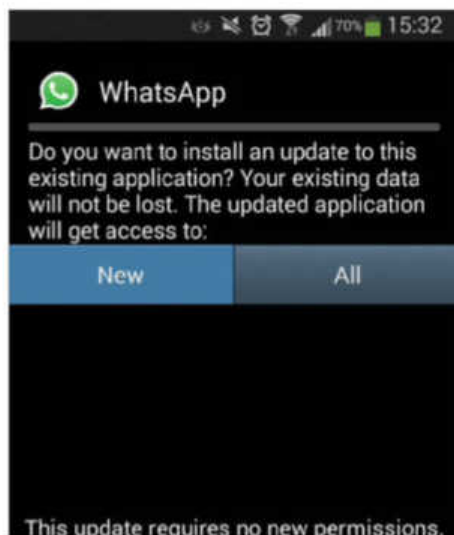
8 Connect to Wi-Fi

This final step will back up your messages to Google Drive so they're safely stored. Tap the green Back Up button and it will save your settings to your Google Drive account. This will use up a lot of data, so we'd recommend being connected to Wi-Fi.



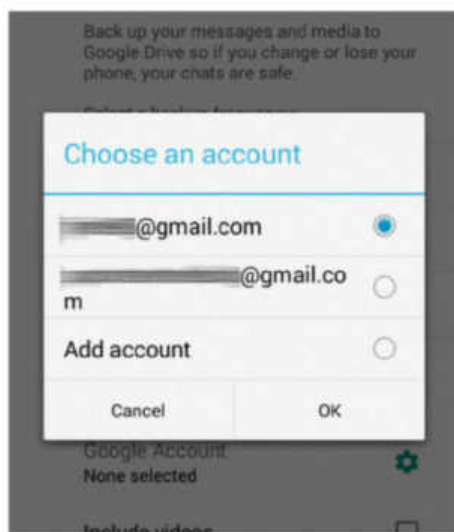
If you already have WhatsApp

Own WhatsApp Messenger already? The update will be slightly different for you...



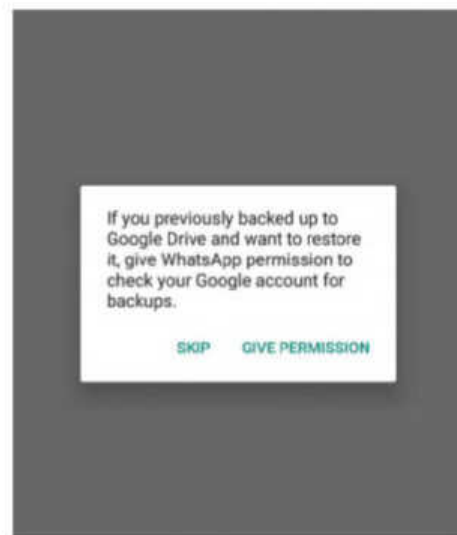
1 Install the app

If your phone recognises you already have WhatsApp Messenger, it will ask you if you want to download the new version. Tap Install to get the update. It won't ask for any new permissions unless you've altered the settings to deny the app access to certain areas.



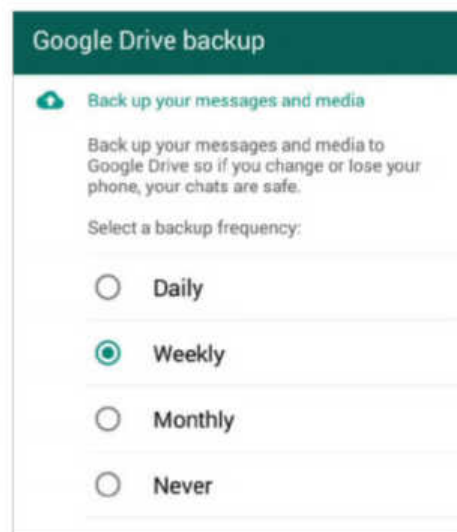
3 Choose an account

If you have more than one Google account attached to your phone, it will ask which one has the attached Google Drive account from where you want to restore your former messages. Tap on the circle next to your chosen email account to colour it blue, then hit OK to begin the search.



2 Give permission

The only permission it asks for is on the above screen. When the app is looking for backups, it will ask if it can search your Google Drive account for any previous data saves. It won't find anything if this is your first time, but it will if you're reinstalling after backing up.



4 Include videos

After setting up the sync, head into your back-up settings. At the bottom of the screen will be the option to include videos in the backup. When this isn't ticked, WhatsApp videos will not be shared with Google Drive because of limited storage availability. Tick it to alter this default setting.

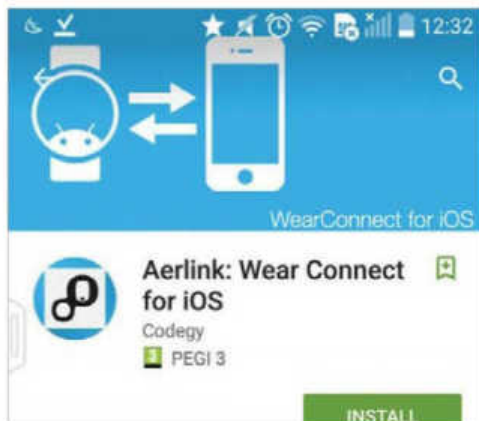
App used >> BLE Utility and Aerlink: Wear Connect for iOS **Works with** >> Version iOS 6.0 and Android 4.0 and up

Use your Android Wear device with an iPhone

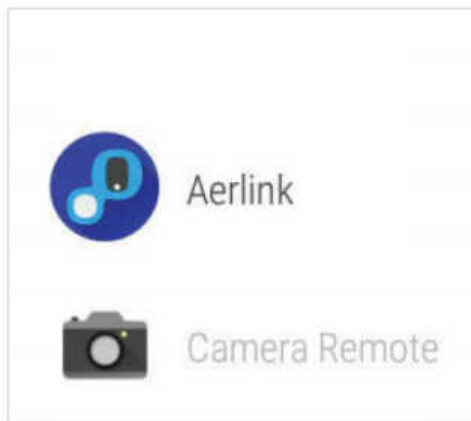
Get your Android Wear device to work cross-platform without hacking

One of the major problems in the ongoing battle between Apple and Android is the lack of cross-platform integration. Once you've committed to one operating system, it becomes very difficult to move over as so much of your data, such as your music and photos, refuses to transfer across to the rival platform. Wearables have added another dimension to this issue as an iPhone user may want an Android smartwatch, but then they would not be able to use it with their phone. However, iPhone users can now use some basic functions on their Android Wear device thanks to two new apps. This tutorial will require you to use both an Android and Apple handset in the setup, but after that your smartwatch should be able to sync up with either of your phones.

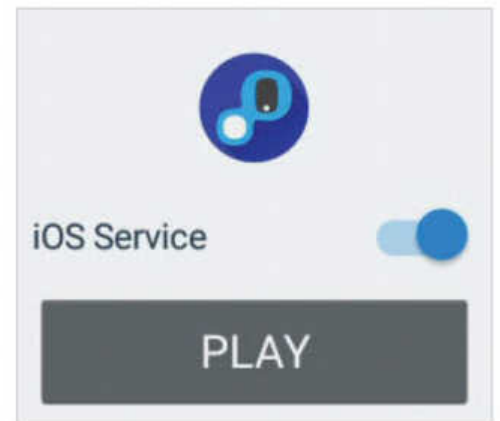
This tutorial will show you how to use both the BLE Utility app and the 'Aerlink: Wear Connect for iOS' app in order to turn your Android-only smartwatch into a device that can work with both Android and Apple handsets, giving you many more interesting options for your smartwatch.



1 Download relevant apps
Download 'Aerlink: Wear Connect for iOS' onto your Android phone. It will appear as 'Aerlink' on your handset and smartwatch. Download BLE Utility on an iPhone.



2 Locate the Aerlink app
You should already have the Android Wear app downloaded and your watch synced with your Android phone. Next, tap on the watch's homescreen where you will see the Aerlink app.



3 Activate iOS Service
Click the app. On the next screen, you will see a toggle for iOS Service. The slider will be grey; tap it to turn it blue. Your phone will now be able to see and pair with Apple handsets via Bluetooth.

The new watch

What do you need to know when using an Android Wear device with your Apple iPhone?

You won't get iOS apps on your watch

Although it will work with iPhone now, Android Wear devices still won't be able to run apps downloaded from the Apple App store. This will prove frustrating to iOS users who will need to rely on the Google Play store apps for their watch functions

Limited usability

You do lose out on quite a lot of functionality by using an Android smartwatch with an iPhone. This is because many key features can't translate across the two platforms. However, you can still get notifications, use the iPhone style clock and see your phone's battery level

faq

Ask your own question online at littlegreenrobot.co.uk

Don't some watches already support iOS?

Yes, some watches do ship with iOS support. The Huawei Watch, Asus ZenWatch 2 and LG Watch Urbane all have a built-in ability to run with iOS handsets after you download Android Wear for iOS. This method, however, means that you're able to get iOS on any Android Wear device out there.

Make calls

The Android dialler will be replaced by the iOS one. This will only result in a small style change to mainly the font and the icons. The watch will only take calls from your iPhone, so calls to your Android phone won't set it off

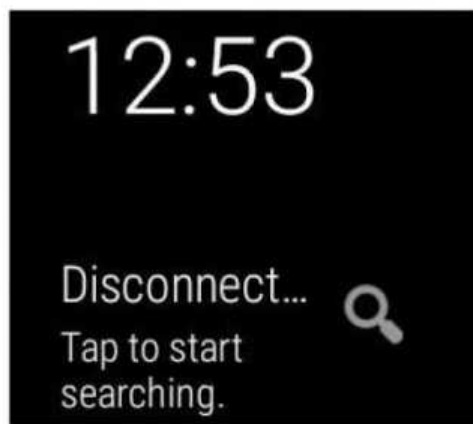
Keep Google Now

One function that will remain on the Android Wear smartwatch is Google Now. Those cards that can tell you the weather, time and distance to home or the sports results will still be active, so at least you won't lose that key part of the smartwatch experience



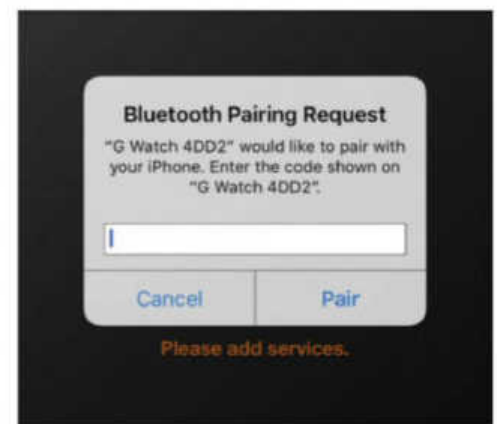
4 Open BLE Utility

BLE Utility finds devices that use Bluetooth Low Energy. Without this, the iPhone still couldn't locate the watch. Once the app has loaded, tap on Peripheral. This is where the watch will appear.



5 Search for iPhone

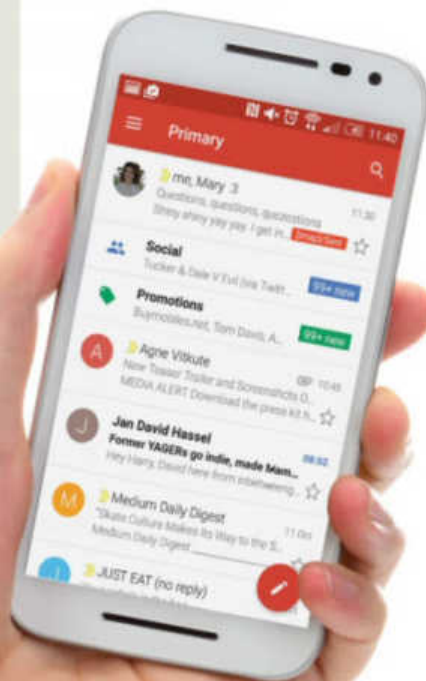
Once you had moved the slider, the watch should have told you it had disconnected – this is part of the plan. Tap the magnifying glass icon and it will search for compatible devices to pair with.



6 Pair the phone

When the watch and the phone find each other, this box should appear. Look on the watch's screen for the code then type in the vacant box. Pairing with an Android phone is a bit simpler.

App used » Gmail Works with » Varies with device

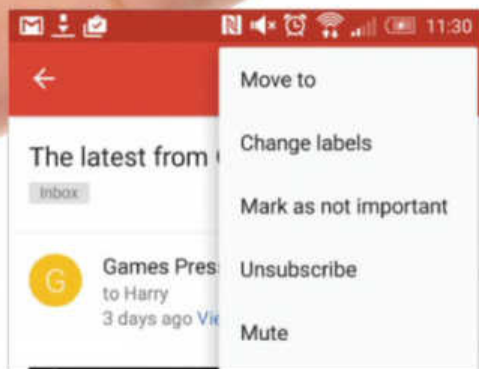


Clear your Gmail inbox of spam

Use the new Unsubscribe and Block functions to make sure your Gmail remains spam free

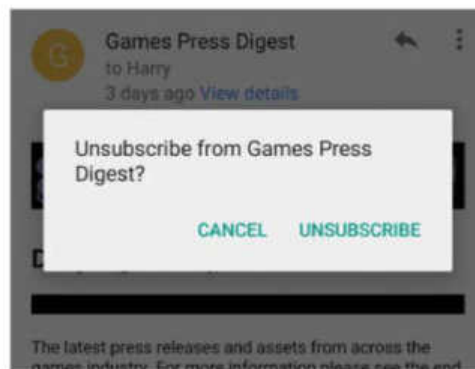
Google has added some new functionality to the Gmail Android app, enabling you to quickly unsubscribe from mass email lists and block contacts with a quick couple of taps. The blocking button will put any emails you receive from that particular sender straight into your Spam folder. It's a pretty easy system to get to grips with and it shouldn't take you more than a couple of minutes to

get things working. You'll also find these new buttons in the web version of Gmail too and any blocking or unsubscribing you do on one platform will automatically cross over to the other. You'll need the latest version of the Gmail app installed on your device, but that's about it. So if you've got your phone to hand, we'll walk you through the process and give you a few tips on the way.



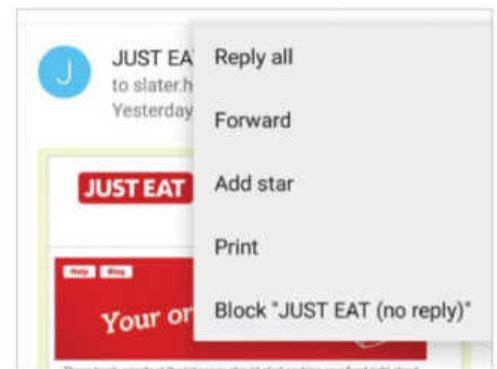
1 Unsubscribe

The Unsubscribe button is at the top of the drop-down menu, in the top-right corner of the screen. It's only visible if the email you're trying to unsubscribe from is supported by the app, so if you can't see it then you can't use the function.



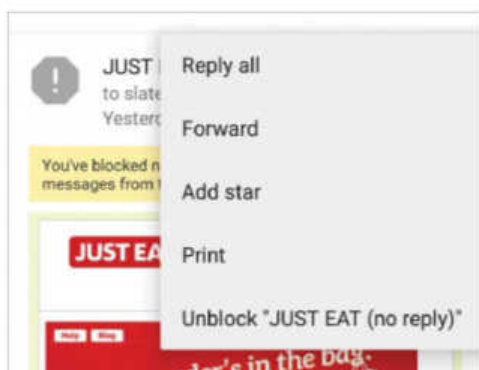
2 Confirm your choice

Tap the option in the menu. A pop-up will appear asking you to confirm. Tap Unsubscribe and you're done. Remember that unsubscribing can't be undone within the app, you'll need to re-subscribe from the company's original website.



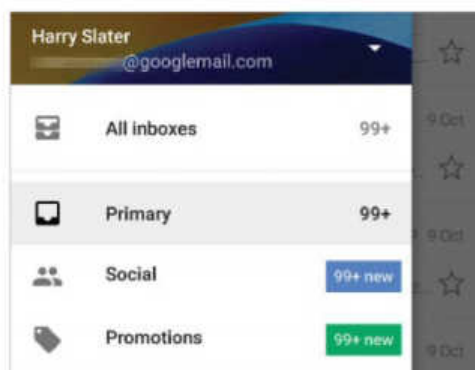
3 Block your spam

The Block button is in the second menu, the one within the body of the email next to the sender's details. Tap it and you'll see the option to block. Another tap and all emails in your inbox that were sent from that sender will move to spam.



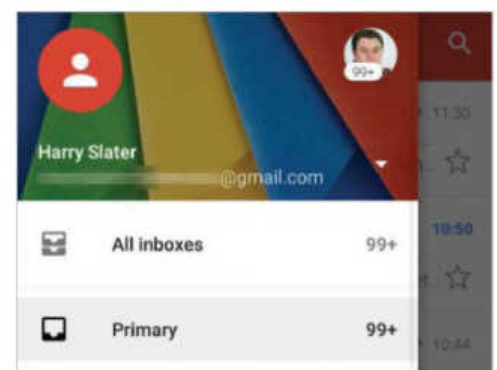
4 Unblock

You can undo a block in the same manner if you've done it in error or if you decide you miss those emails. Just tap the options menu next to the contact's details and select Unblock. Emails already in your spam folder will stay there.



5 If you're using Inbox

Sadly you can't access these options using the Inbox by Gmail app, so you'll need to either use the Gmail app to set up the blocks or do it directly from the website on your computer. Hopefully the buttons will be added to the Inbox app soon.



6 Different accounts

If you use multiple accounts in your app, you'll need to block and unsubscribe from emails in both accounts. We'd like to see an option to block from multiple accounts at once, but that's something for a future update.

App used » Yahoo Mail 5.0 Beta Works with » Varies with device

Get a sneak peak at Yahoo Mail 5.0

Explore Yahoo Mail's new Material Design and user interface with this beta release

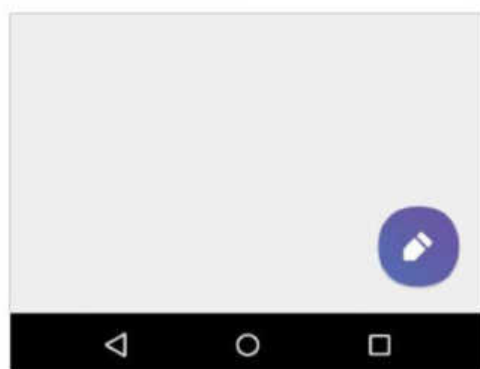
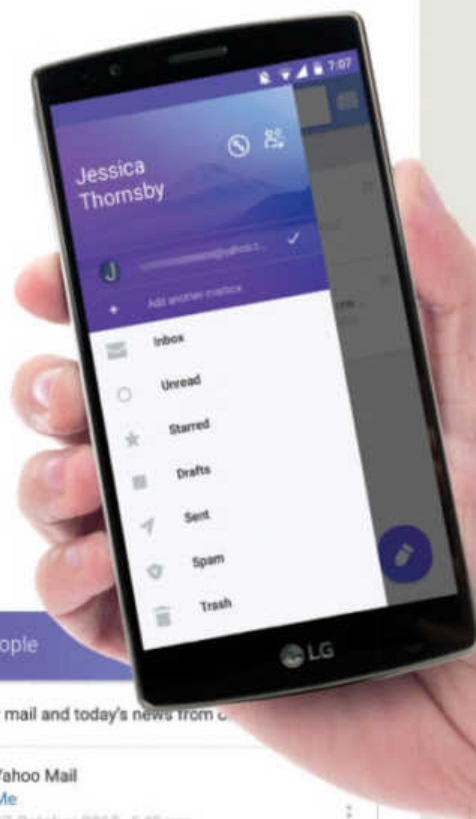
The release of Android 5.0 Lollipop brought with it some new features, but it also introduced a new set of design principles that dictated how Android apps should look and function. Enter Yahoo Mail 5.0 Beta.

Now Yahoo has given its Mail app a Material Design refresh, not only does the app feature a

fetching new gradient colour scheme, but it also introduces some handy shortcuts and full integration with Yahoo News.

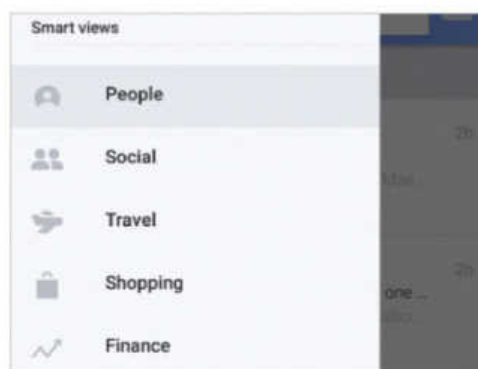
In this tutorial we'll look at some of the new Material Design features you can expect to find in the latest version of Yahoo Mail for Android.

At the time of writing, Yahoo Mail 5.0 was still in beta and not available on Google Play. However, you can grab the apk from newapk.co/apk25865 and then use a file explorer app, such as ES File Explorer, to install the apk manually.



1 Material Design shortcuts

A handy addition to Yahoo Mail is the floating action button (FAB), by tapping this button it will instantly create a new message. Another feature is the side menu that can be dragged right on screen regardless of where you are in Mail.



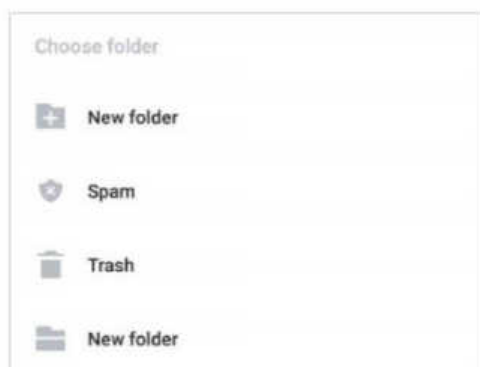
2 Filter your emails

If your inbox is growing out of control, you can filter your emails with Smart Views. Open the side menu to see a selection of smart views, including People, Shopping and Travel. Tap any of these to see only emails from each category.



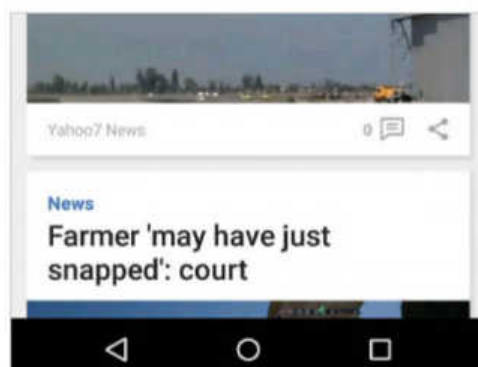
3 Organise your emails

If you want more control over how your emails are organised, you can create custom folders. Open the side menu, tap New folder and give it a name. To move an email, open the email then tap the Move icon in its header.



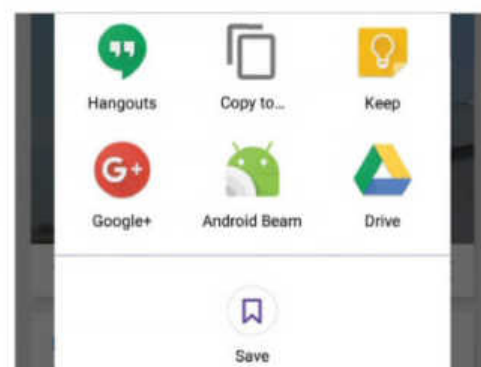
4 The Move menu

Once you tap Move a new menu appears. You can then choose to move the email into any of Yahoo Mail's predefined folders, such as Spam or Trash, or you can select one of the custom folders you created earlier.



5 See the latest news

Yahoo Mail isn't just for emails, you can also use it to read Yahoo News. To see the news section, tap the newspaper icon in the upper-right corner. Tap stories to open them or jump to the comments by tapping the speech-bubble.



6 Save stories for later

If you find a story you want to save for later, you can store it in the app's My saves tab. To save a story, tap its accompanying Share icon and then choose Save. To jump back to the mail section, tap the email icon in the upper-right corner.

Apps used » Pintasking Works with » Android 4.1 and up

Put a pin in it!

Multitask like a pro using the Pintasking app to pin important tasks and links

Despite all the advances in mobiles over the years, one area where phones and tablets still struggle is in multitasking. Android apps take up the entire screen, leaving you no room for anything else.

Pintasking is an app that aims to make multitasking on Android possible by giving you the ability to minimise your active apps into floating buttons. You can then jump between these ongoing tasks by tapping the related floating button.

You can download Pintasking for free from the Google Play store, although you'll need to upgrade to Pro (£2.99/\$TBA) to use all of its features. This tutorial uses the Pro version.

There's a bit of setup required before you can use the app. The first time you launch Pintasking it may prompt you to enable the accessibility service. If this happens, tap Enable Accessibility Helper then select Pintasking from the menu and set its slider to the on position.

Next return to the main Pintasking screen and tap System Helper Installer followed by Verify Root Access. Follow the on-screen instructions to install the helper.

"Despite all the advances in mobiles over the years, one area where phones still struggle is in multitasking"

Customise swipe

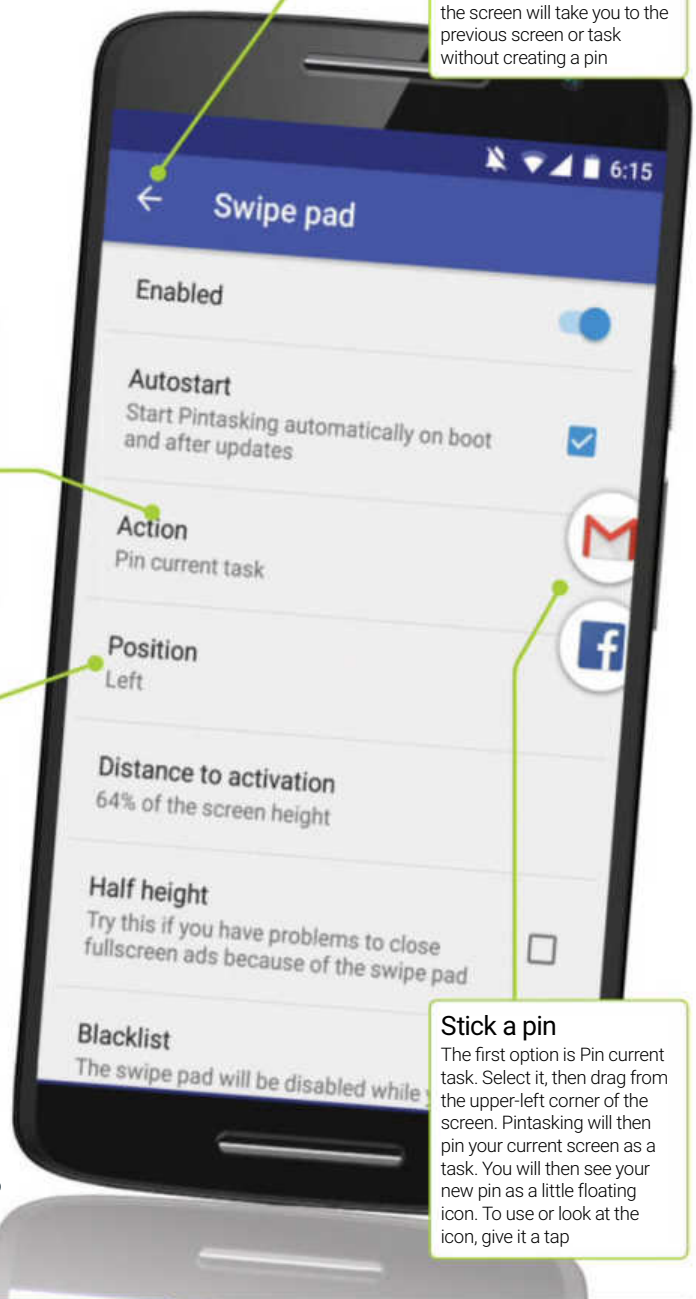
To start using Pintasking, tap Swipe pad from the main screen, then check the Enabled switch is active and Autostart is enabled. You can now choose which action to perform when you drag from Pintasking's swipe pad bar in the upper left-hand corner. Tap Action to see the options

Default pins

By default, by dragging from the upper-left corner you can create a pin or switch to a previous screen. If you'd prefer to drag from a different location, tap Position and then choose left, centre or right from the pop-up

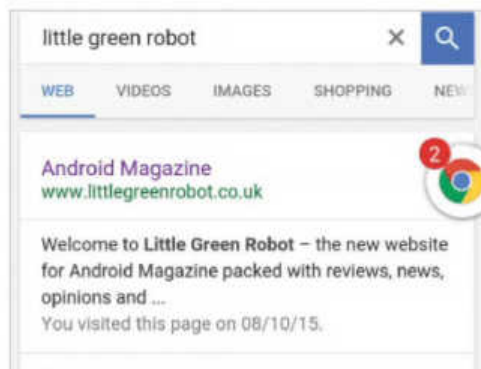
Go back a screen

Alternatively, you can tap Action and select Switch to last task instead. With this option selected, dragging from the upper-left corner of the screen will take you to the previous screen or task without creating a pin



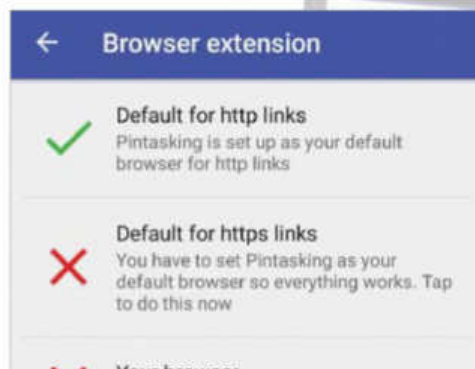
Stick a pin

The first option is Pin current task. Select it, then drag from the upper-left corner of the screen. Pintasking will then pin your current screen as a task. You will then see your new pin as a little floating icon. To use or look at the icon, give it a tap



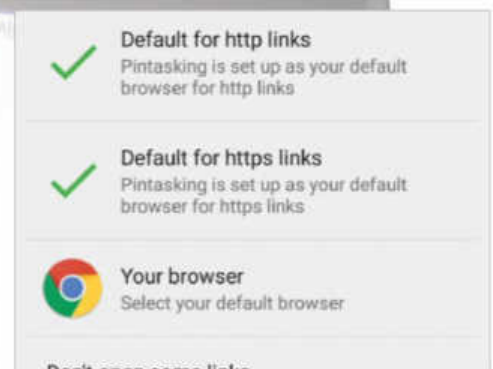
1 Browser extension

Have you ever been browsing the web and spotted a few links you want to check out later? Pintasking can help you out, by letting you stash multiple links in a Pintasking pin without leaving the current screen. You can then work your way through these links one by one.



2 Set HTTP default

To get started, launch Pintasking and tap Browser extension. You'll need to set Pintasking as your default browser, so tap Default for http links. When prompted, tap Pintasking. Then tap Default for http links once again, double-check that Pintasking is still selected and then tap Always.



3 Choose default browser

Repeat this process for Default for https links. Then tap Your browser and choose the default browser you want to use, such as the Chrome app. Test your new link-storing functionality by opening your browser of choice and then tapping a link. A small overlay will appear.

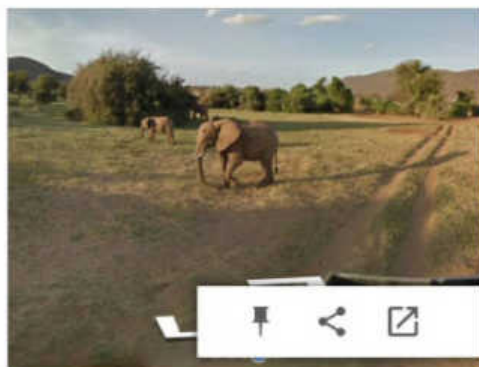
1 Shrink the swipe-pad bar
Pintasking's swipe pad getting in your way? Open Swipe pad and select Half height.

2 Disappearing pins?
Stop pins vanishing when their related task has finished by selecting Pins>On task finish.

3 Pin your homescreen
Pintasking ignores your homescreen by default. To change this, select Pins and deselect Ignore home.

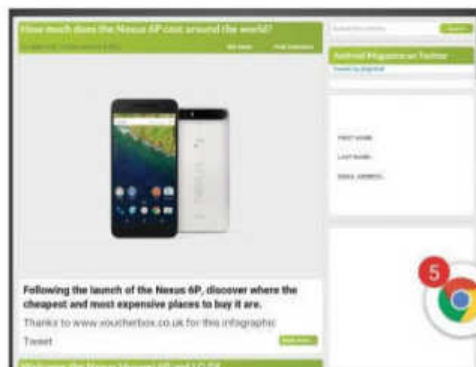
4 Try a multitasking browser
Link Bubble loads all of your links in the background of your device, ready for you to explore later.

5 How about Flynn?
Similar to Link Bubble, the Flynn browser helps multitasking by loading links in the background.



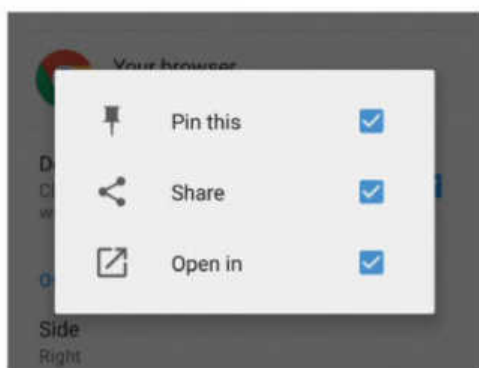
4 Start saving links

To save the link for later and return to the previous screen, tap the pin icon. Pintasking will transport you back to the previous task, but now with the addition of a floating icon that contains your link. When you're ready to check out the link, just tap the floating bubble.



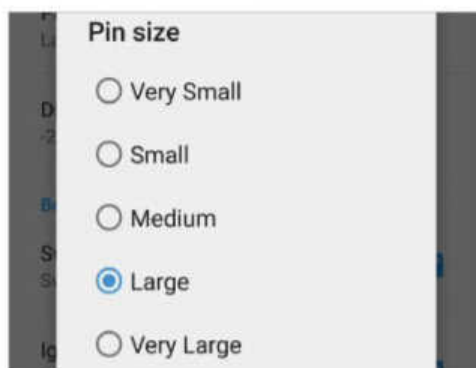
5 Store multiple links

Once you've stashed one link in the floating icon, Pintasking will save all subsequent links in the same icon and keep a tally of how many links you've saved. When you clicked the first link, you may have noticed additional options in the overlay; we'll take a look at these next.



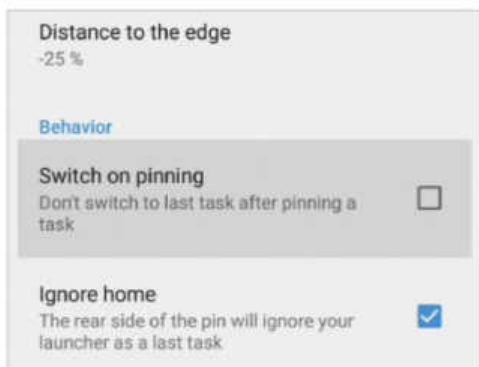
6 Customise the overlay

Among these icons are the Share icon (that launches the standard Share with dialogue box) and the Open in link, which lets you view it in another app. If you want to remove these icons from the overlay, reopen Pintasking's Browser extension section and tap Toolbar actions.



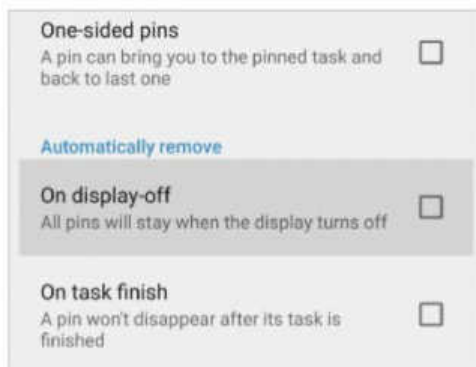
7 Customise your pins

Once you've got the hang of Pintasking's default pinning behaviour, you may want to customise the way your pins look and function. Launch Pintasking and select Pins from the main screen. The first option in this submenu can change the size of your pins.



8 Stop task switching

By default, Pintasking assumes that once you've pinned a task, you'll want to return to the previous task. If you'd prefer to remain on the screen you've just pinned instead, you'll need to disable the Switch on pinning option, which you'll also find in the Pins submenu.



9 Save pins indefinitely

By default, Pintasking deletes all your pins every time you turn your device's screen off. If you want to store your pins indefinitely instead, you'll need to disable On display-off. To resume deleting pins whenever you switch your device's screen off, simply re-enable On display-off.

faq

Ask your own question online at littlegreenrobot.co.uk

Can I disable Pintasking for certain apps?

Yes. Maybe you keep accidentally triggering Pintasking in certain apps, for example when you're dragging and tapping around inside a gaming app or maybe you know you'll never need to use Pintasking inside a few particular apps. Whatever the reason may be, you can blacklist apps so pins will never appear when you're inside that app. Open Pintasking and select Swipe tap, followed by Blacklist then select all the apps you want to blacklist.

How do I get rid of my old pins?

If On display-off is enabled, you can clear all your pins by turning the screen off. However, if you just want to get rid of one specific pin, long tap that pin until a red bin appears towards the bottom of your device's screen. Drag the pin onto the rubbish bin and release it.

Need help?

Got a problem with your Android phone or tablet? Get in touch with us...

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[/littlegreenrobot](https://www.facebook.com/littlegreenrobot)
Get help from our Facebook community

twitter
[@igrobot](https://twitter.com/igrobot)
Follow us to send your questions and thoughts

email
qa@littlegreenrobot.co.uk
Send your questions for our team of experts to tackle

App used >> BuzzFeed News Works with >> Android 4.0 and up

Get the BuzzFeeds you actually want to read

The viral content website has launched its own news app for personalised updates

As you have almost certainly seen over the last few years, BuzzFeed is a hub for viral content, list articles and quizzes.

However, the site is also gaining rapid respect in the industry for its good news gathering and impressive reporting. Its global network of offices writes news and also conducts very high-level interviews, such as a sit-down interview with President Obama in February 2015.

This burgeoning reputation as a legitimate news outlet has prompted BuzzFeed to launch an app specifically for its news section. It regularly updates throughout the day and reports on a wide range of important issues.

This annotated tutorial will show you how the app works and what steps you need to take to receive the news updates that are important to you, while ignoring stories you are less interested in.

See missed news

The Catch Up submenu in the top left-hand corner of the screen will show you a list of the biggest stories, while the Alert Stream will simply list the headlines of stories in your interest areas from a variety of sites

In-app opening

News articles that have been taken from BuzzFeed's website open up in the BuzzFeed News app, while the articles from outside BuzzFeed open up in a mobile-friendly version of that website. This is important for keeping the house style of the respective websites intact

Simple layout

Just like its parent site, BuzzFeed News is very simply laid out. It is set up in a straight list of topics, making it easy to scroll through the list of news stories to find what you want to read, rather than having to dig through differently-sized tiles

Change interest areas

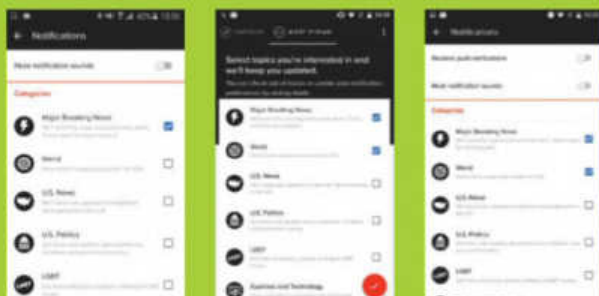
Once you have set your interest areas, you are able to alter them by tapping the white cog and ticking the boxes next to the subjects you are interested in and unticking those you no longer want to see alerts from

Receive alerts

If you tap the white cog in the blue circle in the bottom right-hand corner of the screen, it will bring up the option to have alerts sent to you whenever a new story is added in a category that you have registered an interest in

Set up your alerts

How to set up the BuzzFeed News app to only alert you to stories that you want to see



Initial setup

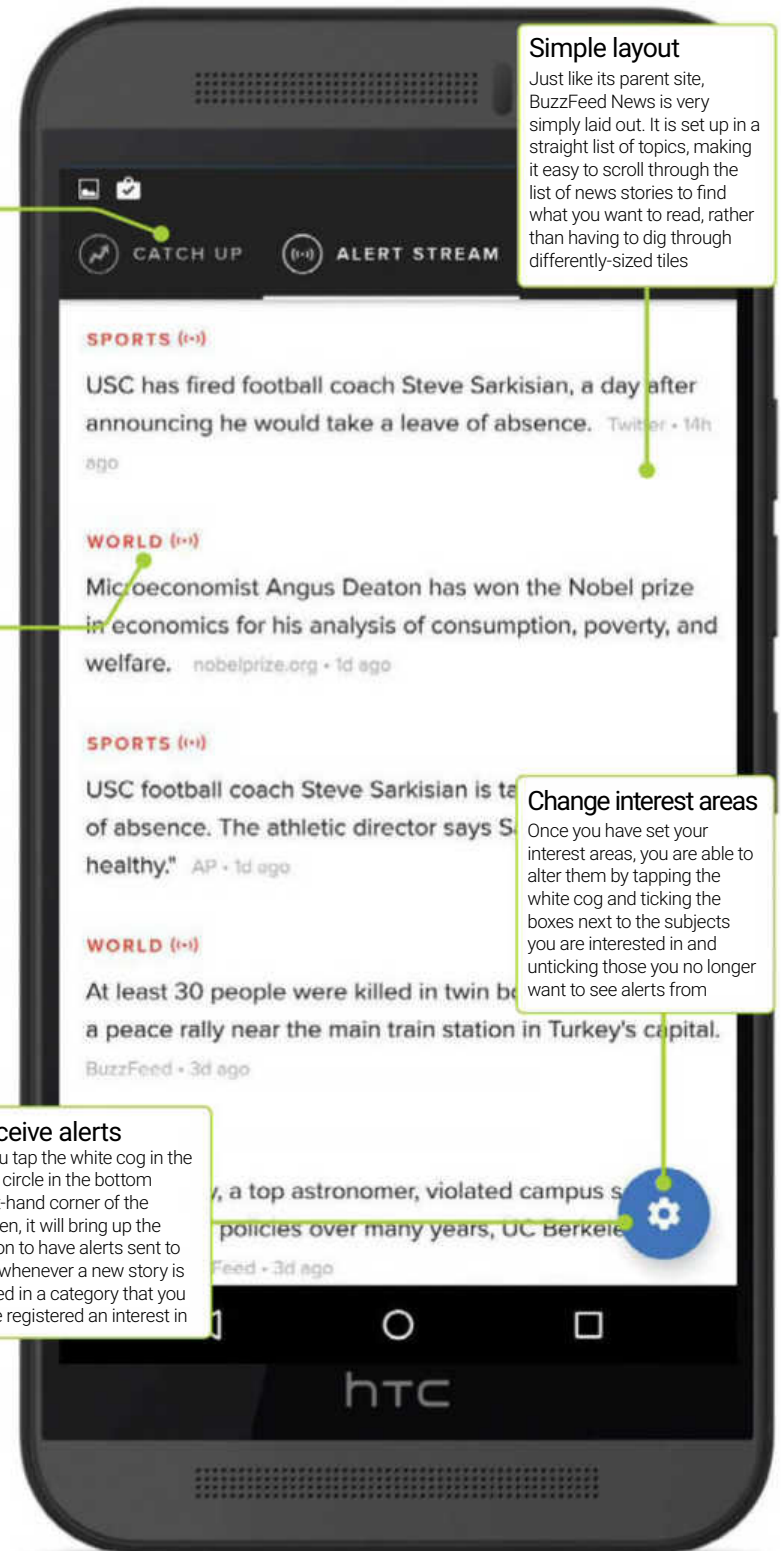
Major Breaking News will be automatically ticked before you begin the process. Press the tick boxes next to each area of news you are interested in to start receiving those particular alerts. Tap again to remove the tick and stop those notifications.

Receive alert notifications

Hitting the white tick inside the red circle on the set up screen will give you the option of adding notifications every time an important news story drops onto the app. This can be reversed in the Notifications menu in your phone's settings.

Receive push notifications

Tap the white cog inside the blue circle. This will open up a Settings menu that contains two sliders. The first slider will set up push notifications for key stories, while the second one enables notifications to come through, though they remain muted.



App used >> Kono.ai: A.I.Mobile Scheduler Works with >> Android 4.4 and up

Take the pain out of arranging meetings

Automatically schedule your meetings using the free Kono.ai mobile scheduler app

Do you seem to spend lots of time trying to set up meetings with colleagues or friends?

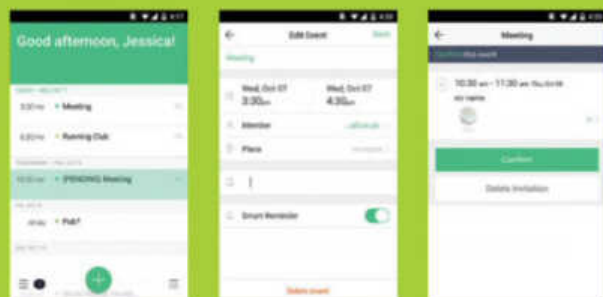
Kono.ai: A.I.Mobile Scheduler aims to automate the meeting-scheduling process by syncing with any calendar apps installed on your device and learning your personal preferences. When you come to plan a meeting, the app will recommend a suitable time and location then check this against the schedule of all attendees.

When it's time to send invites, Kono syncs with your contacts list so it can notify attendees via email or SMS text message. On the day of the meeting Kono will advise you when to set off based on the traffic conditions, provide a suggested route and may even advise you on nearby locations worth visiting after your meeting.

You can download Kono.ai: A.I.Mobile Scheduler from the Google Play store.

Change of plan?

Need to change the date, time or location of an event? Or maybe you missed someone off the invite list? Learn how to edit your events



Edit time, date and location

From the main calendar screen, tap the event you would like to change and then select Edit. On the subsequent screen that appears, you can change the event's date, time or location by tapping the corresponding field as shown above.

Add more people to the meeting

To add more people to your event, tap Member and then select all the people you want to invite. You also have the option to remove people from the event if your change your mind. Do this by deleting their name from the Who field at the top of the screen

Delete or confirm

Back on the main Kono screen, you'll notice that events appear as Pending until they're confirmed. To delete a pending event, tap it and then select the Delete Invitation option. Alternatively, you can remove the Pending label by tapping Confirm.

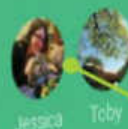
Type of event

When you launch Kono you'll be taken to the main screen, which is a calendar of your upcoming appointments. To schedule a new event, tap the green + and choose an event type from the list: meeting, conference call, lunch, dinner or hang out. Then tap Next

Send your invites

Select up to three different dates, times and locations. When you're happy with the information you have entered, tap Next. Kono will then supply a ready-made invitation with your list of times, dates and locations attached. Edit this text if required and then tap Send

Lunch



Build an invite list

You'll see a list of all the contacts Kono has found across your device. This will typically be a mix of email addresses and phone numbers. Select all the people you want to invite and then tap Next. Kono then checks each attendees' schedule, where possible

Select up to 3 options (1/3)

Thu, Oct 08 11:00 am - 12:00 pm
Europe / London

Sakushi

27 Campo Ln, Sheffield S1 2EG, United Kingdom

Thu, Oct 08 1:00 pm - 2:00 pm
Europe / London

Lunch Stop

★★★★ 3 reviews on restaurant

Mon, Oct 12 12:30 pm - 1:30 pm

Europe / London

VeroGusto

Next

Set a date

Kono will suggest some times, dates and locations. To use one of the suggested time and date combos, tap the accompanying icon so it turns green. To suggest a different time or date, tap the arrow instead and make your selection from the calendar that will appear

Choose a location

If you don't fancy any of Kono's suggested locations then tap the edit pencil icon. This opens a pop-up where you can either type the location of your choice or tap Map and then choose a location using Google Maps

App used >> AmpMe Works with >> Android 4.1 and up

Turn your friends' mobiles into speakers

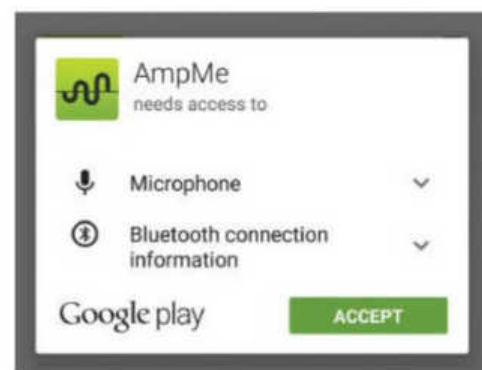
This clever app links together all of your friends' Android phones to use as speakers

Your smartphone might have a super high-definition screen and a pretty decent camera built into it, but when it comes to speakers it's not that impressive – as anyone who's had to sit and listen to someone else's tinny music on a bus will tell you. AmpMe attempts to solve this problem in a pretty clever way. It enables you to connect multiple smartphones into the same party with the host controlling the playlist. There are a few limitations and niggles at the time of writing so your speakers

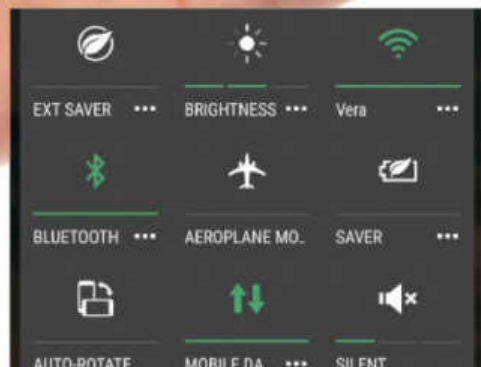
won't magically be able to produce rich and interesting bass sounds, but it's always nice to up the ante on your music listening. In this tutorial we'll walk you through how to get the app set up, how to start parties, how to join parties and how to get the most out of this crowd-sourced listening experience. All you'll need is a phone with an internet connection and some friends to get things going. You will all need to download and install the app on your devices too.



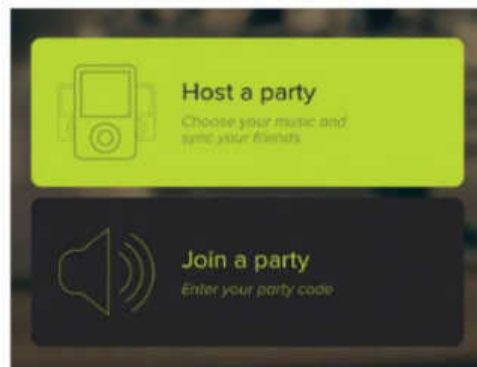
1 Get the app
Everyone will need to grab the app from the Google Play store. It doesn't cost a thing to download and it's not a particularly large file either. Fortunately, the app is cross platform between Android and iOS devices, so it makes it easy to set up when all of your friends have different phones.



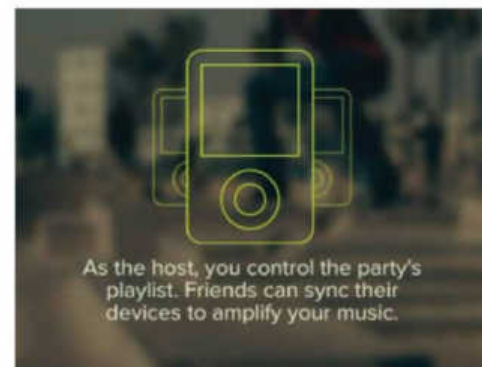
2 Accept the permissions
You will need to give the app access to both your Bluetooth settings and to your microphone. It needs to use your microphone in order to check it's in sync with all of the devices around you that are part of the party. Tap Accept to complete the installation.



3 Turn on your Bluetooth
Now everyone is going to need to turn on their Bluetooth. It's not the most power-effective way to connect all of your devices, but it's the one the app uses. You will all need to have Bluetooth turned on in order to either host or join the party. When you're done, open the app.

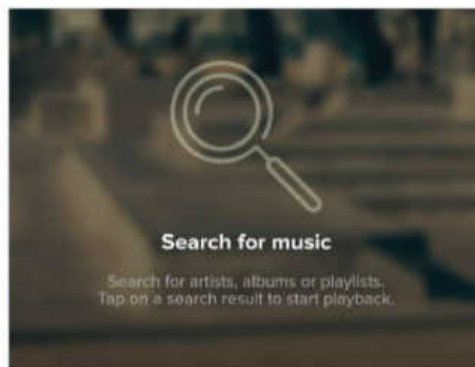
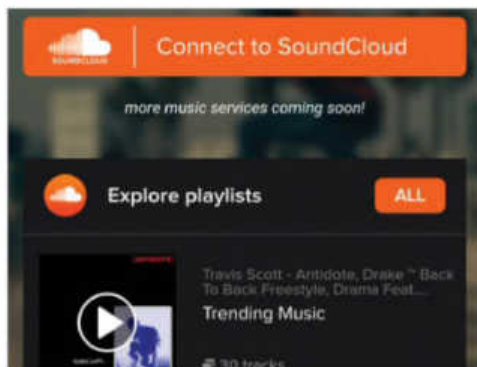


4 Host or join?
Now you need to decide who's going to host the party and who's going to join it. Don't worry, we'll walk you through how to do both. If you've decided you're going to host then tap the relevant button. It's the big green one in the middle of the screen.



5 Read the information
Once you've tapped the button you'll be given a bit more information. The host is the only one who can choose the music for the party, then everyone can sync their devices to the host. If you're okay with that, just tap the button marked Got It at the bottom of the screen.

Get in touch
We're on Facebook and Twitter, or
just drop us an email



Will the app be able to use other music services?

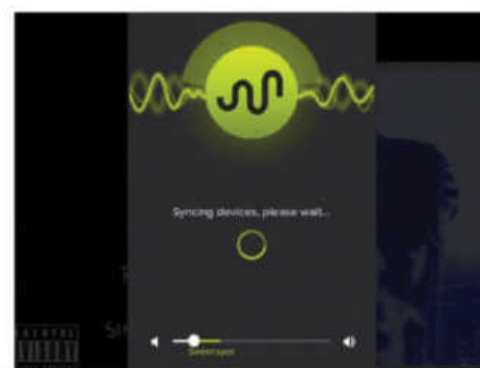
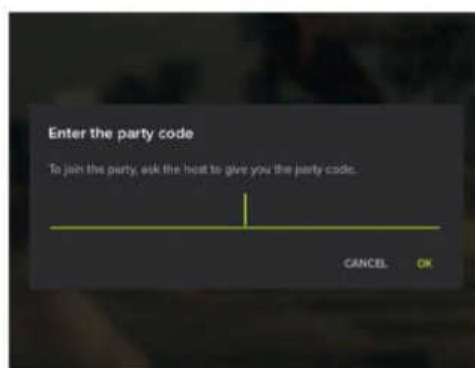
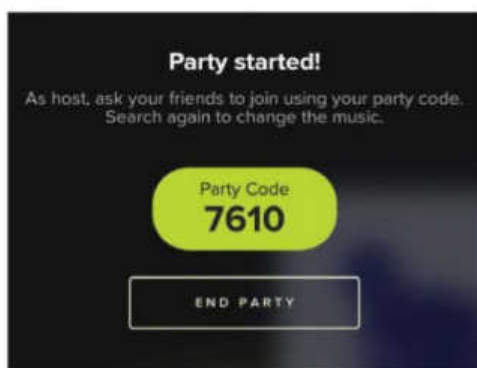
At the time of writing you can only use SoundCloud, which is a bit of a shame as it's not the most popular software. However, the developer has said that it is working on bringing other music streaming services on board, so hopefully it's something we'll see in the not too distant future.

6 Get the party started

It might take you a while to get everything to work correctly – we had some server issues for a bit while we tried to get everything up and running. When you've set up the party, this is the first screen you'll see. If you want, sign in to SoundCloud to use your playlists.

7 Sign up

When you're signed in you can search for music, either by using one of the pre-generated playlists or by playing some of your own. Choose what you want to listen to and tap on it to start your party. The music should start playing pretty much straight away.



8 Get the code

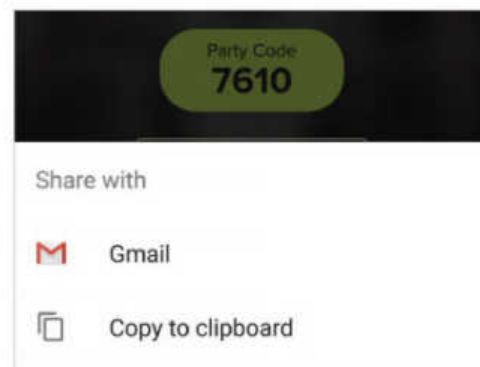
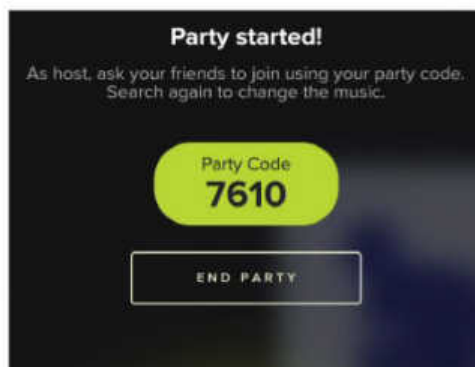
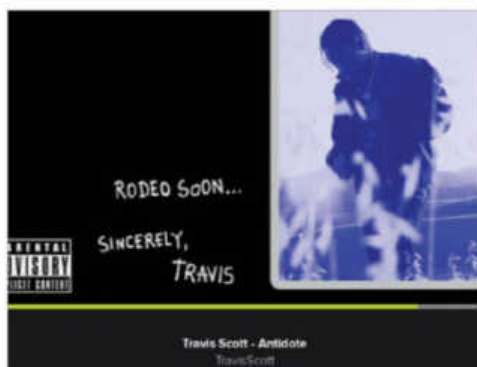
When it does start playing you'll receive a code that will pop up on your screen. This is what you need to give to your friends so that they can join in with the music. You're going to need your phones close to each other to get everything synced, so it's best to do it all at once.

9 Join the party

On the devices that you want to sync with the host, you need to tap the black Join button at the bottom of the screen. When you're prompted you'll need to type in the code you received from the host. Tap OK and then tap Join to continue. It shouldn't take too long.

10 Sync all devices

Now this is the slightly fiddly bit: you need to sync the devices together. Hold them reasonably close and make sure the volume on the devices you're syncing is in the Sweet spot. It might take a couple of tries to get this right so have some patience, but it will work.



11 Head to the dance floor

Once everything is synced together you can crank the volume up on the devices and start dancing. Remember that only the host of the party can change the track or pause the music; the only thing other party members can do is turn the volume up on their own devices.

12 Party's over

If for any reason you want to end the party then just tap the big button that says End Party. You can skip and pause the tracks with the buttons at the bottom of the screen. You don't need the app constantly running in the foreground for it to work either.

13 Share the code

The host can tap the share button at the top of the screen to send the party code out to other people. There are a variety of ways to do it and it's probably quicker than reading it out. Then that's it, you should now have multiple devices playing the same music.

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NEXUS

UNLOCKED

HACK YOUR SUPERPHONE

Everything you need to know to get started on
hacking and tweaking the new Marshmallow phones

Nexus devices have always been the number one choice of the Android modder when it comes to hacking. They're the easiest to root, the easiest to recover and they have the most mods and tweaks available.

That's still true of the Nexus 5X and Nexus 6P, but it's not quite as simple as it used to be. With Marshmallow Google is tightening up on security: encryption is turned on by default and unlocking the bootloader – a necessary step that opens up your device to modifying and replacing system and other core files – now needs to be enabled first in the software.

The new Nexus phones are still pretty open, but you can be sure that completely locked down handsets will become common once other manufacturers jump on board with the release of Marshmallow.

Even the Nexus 6P now blows a hardware fuse, called the QFuse, when the bootloader is unlocked. This doesn't damage the phone in any way, but it cannot be reversed even if the bootloader is relocked. The full implications aren't yet known and it is possible it may impact secure functions like the ability to use Android Pay, which could

potentially then have warranty issues so, as always, proceed with caution.

Still if you're an early adopter of a Nexus phone then it's probably safe to say that unlocking and rooting are second nature to you and even with the improvements in Marshmallow, there are still countless benefits to doing so.

As always, it's good to unlock the bootloader before you set up your phone, but unlocking wipes your data. Rooting won't always cause data loss though, so if you want to hold off on that for a while you can. Let's get started. »

The root toolkit

There are a number of tools that are essential to rooting an Android phone. Some are device specific so check you have the right version for your phone before you get started. Also, for all beginners out there, one-click root tools are worth tracking down.



Fastboot and ADB

Fastboot and ADB are command line tools that normally come with the Android SDK. They enable you to replace system files directly from your desktop computer. If you don't need the full SDK, the tools can also be found online separately.



TWRP

TWRP is a custom recovery. It enables you to flash ROMs and perform full backups of your system – an essential app for a rooted phone. Read more and download it at twrp.me.



SuperSU

SuperSU is an app that is used while rooting that enables you to manage which apps can access root permissions once it is done. Get it from download.chainfire.eu/696/supersu.



Command line

You will need a command line tool on your computer – or the Terminal on Mac or Linux – to use many root methods or to restore your phone. This is built in on your OS.

Why root your new phone?

What do you gain from rooting your phone? We take a look at the benefits

Rooting can prevent certain secure apps from working. The fingerprint scanner on a Nexus still works, but Android Pay might not. Many banking apps also won't work on a rooted phone.

Rooting completely unlocks Android. It makes the system files accessible so that they can be altered or even completely replaced. This opens up the phone to literally any kind of hack or tweak. You can install a new build of the Android OS with different features, flash a kernel to improve battery life or add things like LG's tap to wake function. For Marshmallow specifically, you can turn encryption off (it's now turned on by default with no option to disable it) or configure the new Doze feature

that turns off background apps to reduce their drain on the battery.

Rooting also enables you to get more control of permissions beyond what is included in Android 6.0, customise the UI by adding tiles to the Quick Options pane or increasing the volume from the phone's speakers. In short, almost anything you would like to change about Android can be done on a rooted phone, which is why the quest for root on every Android device remains as popular as ever.

Do you still need to root?

What do you get from rooting? And are there any reasons why you should avoid it?

Nexus 5X and 6P 	You will access an unrivalled number of hacks and tweaks to supercharge your phone. Most new hacks come to Nexus phones first. Tweaks can improve battery life and also get the most out of the camera hardware.	The new permissions controls and Doze feature in Android 6.0 reduce the need for XPrivacy and Greenify, which are two of the most popular hacks. OTA operating system updates are also harder to install.
Samsung Galaxy S6 	The main benefit to rooting the Galaxy S6 is to step away from Samsung's heavy-handed software interface in favour of a more stripped back version of Android. These ROMs use less RAM and can make the phone faster.	Samsung's security protections could potentially cause some warranty issues. Replacing the built-in software with a stock ROM will lose many of the unique features of the phone, including native Samsung Pay support.
Sony Xperia Z5 	Rooting the Z5 enables you to get rid of some of the more Sony-centric software on the phone. You can also replace some of the stock apps with much more functional alternatives.	Sony's camera software has many unique features and these won't be accessible on a rooted and hacked phone. Rooting the Z5 is also tricky and not advisable for the less tech-minded user.
OnePlus 2 	The OnePlus One came with the popular Cyanogen OS on board. The OnePlus Two doesn't. Rooting enables you to fix this as there are already builds of the ROM available for this budget phone.	There aren't too many downsides to rooting the OnePlus Two. As with a Nexus, the bootloader is easy to unlock and it won't affect your device's warranty – although bricking the phone isn't covered!

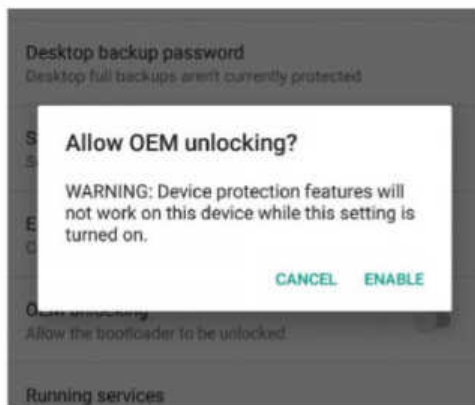
Unlock the Nexus bootloader

Before you begin you must unlock your phone's bootloader. Follow this step-by-step guide

The bootloader is a piece of software on a computer that loads the operating system. By default it is locked for security reasons. No application or user can access the bootloader and therefore cannot tamper with any of the files in the OS. However, tampering with system files is precisely what rooting and hacking involves, so we need to unlock the bootloader before we can do anything else.

Unlocking the bootloader wipes your phone so it's best to do it before you set the phone up for the first time, even if you don't intend to root straight away.

Unlocking in Marshmallow is slightly different to older devices as you need to enable it in Android first. After it's done, you'll also see a brief warning about the unlocked state every time you boot.



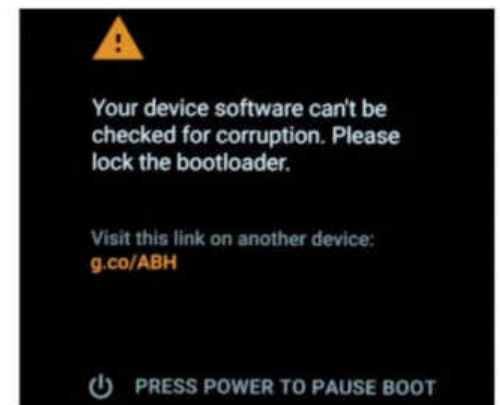
1 Enable unlocking

In Android enable the Developer settings by going to Settings>About, then tapping the Build number seven times. Now hit back and enter the Developer options. Enable OEM unlocking and USB debugging. You can now turn your phone off.



2 Enter the bootloader

Launch the bootloader by holding the power and volume down buttons. Connect your phone to your PC and launch the command line. Change the directory to where fastboot is installed and type **oem fastboot unlock**.

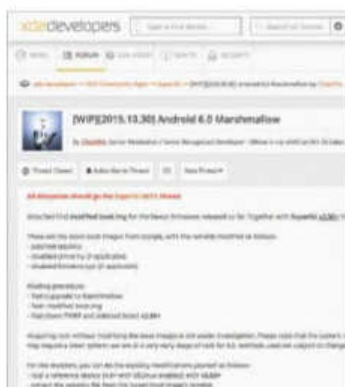


3 You're unlocked

Unlocking takes a few seconds, so don't touch the phone while it completes, then reboot the device. You will see the warning about the device being unlocked and an open padlock icon on the Google boot screen.

Root the Nexus 5X

This root method for the Nexus 5X requires a couple of factory resets along the way so make sure you back up your data before you get started



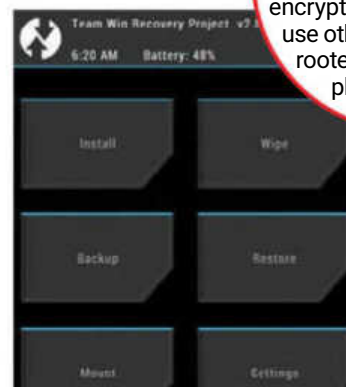
1 Get the files

Check your build number. Go to Settings>About phone and scroll down. This guide is for build MDB08I. Now download the modified boot image from bit.ly/1XJCKmE, TWRP from bit.ly/10iBg1o and SuperSU from bit.ly/1tiRqex.



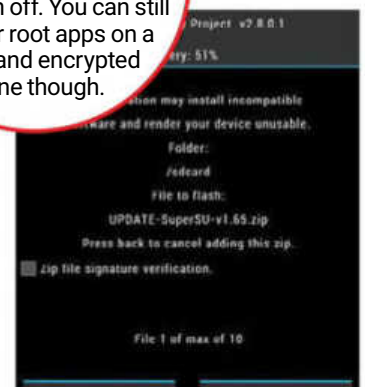
2 Start flashing

In the command line change the directory to point to where you saved the boot image. Connect your phone and launch the bootloader, then type **fastboot flash boot boot.img**. Wait for the process to finish before touching your phone.



3 Flash recovery

Repeat the step with the TWRP file. Type **fastboot flash recovery [recovery-filename].img**. Then use the volume buttons to boot into Recovery. Navigate to Wipe and select Format Data. This wipes your phone, including encryption.



4 Flash SuperSU

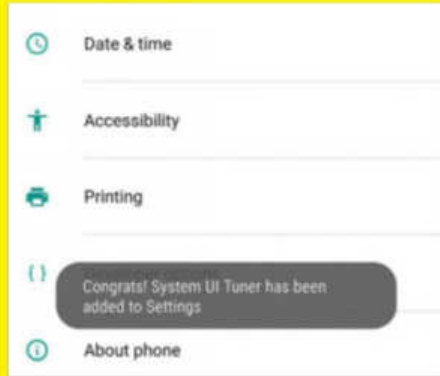
Reboot the phone and move quickly through the setup process before copying the SuperSU file into storage. Reboot back into Recovery (power+volume down) and flash the SuperSU zip. When you restart it will be rooted and unencrypted.

TWRP doesn't work with encryption. If you want to make Nandroid backups or flash ROMs you will need to turn encryption off. You can still use other root apps on a rooted and encrypted phone though.

TIP 1

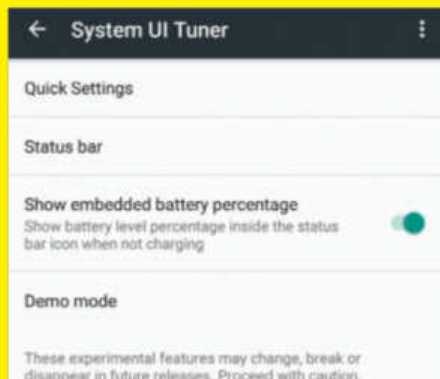
Enable the System UI Tuner

System UI Tuner is a hidden setting that gives access to a few tweaks to the user interface on Android 6.0.



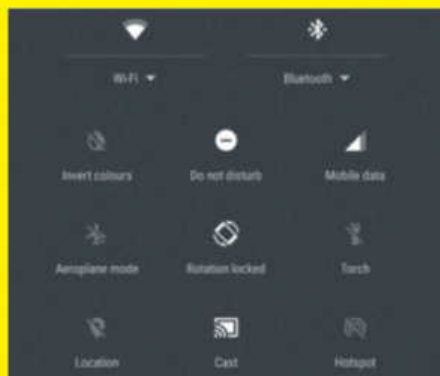
1 System UI Tuner

From the homescreen pull down the notification shade twice to reveal the Quick Settings panel. Hold your finger on the Settings wheel for a few seconds.



2 Make some tweaks

A message will appear saying that the System UI Tuner has now been activated and you'll see a wrench icon alongside the cog. Tap this and then scroll to the bottom of the screen.



3 Explore the UI tweaks

Open the new System UI Tweaks option in Settings. From here you can make tweaks like adding a percentage to the battery icon and adjusting what icons appear in Quick Settings.

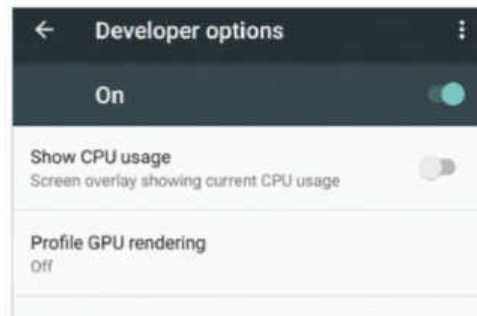
Discover inactive apps

TIP 2

Get to grips with Doze on your new Nexus phone

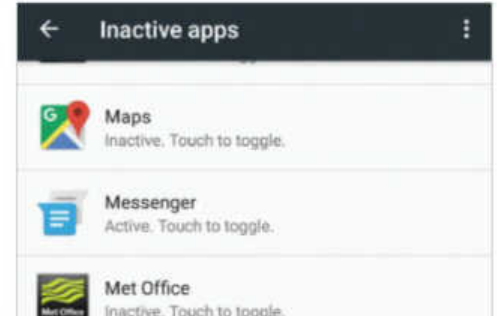
Doze is one of the new features of Marshmallow. It closes apps in the background and prevents apps that are not being used from launching on their own and wasting your battery. It works when the

screen is off and the device is still. You can manually take control of your apps using the Inactive apps feature. This is found at the bottom of the Developer options screen and enables you to close apps manually.



1 Open inactive apps

Tap Inactive apps to see every app on your phone. Underneath each one it says whether it is active or not. Each active app uses its own little bit of RAM and some use considerable amounts of battery.



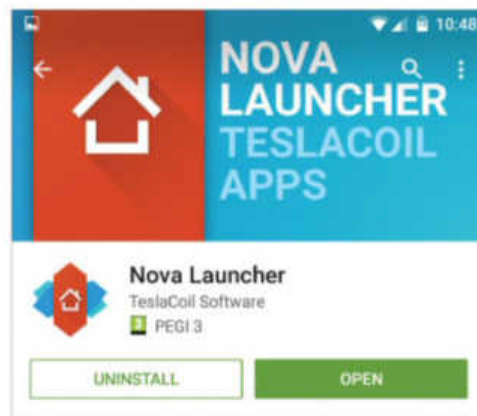
2 Make them inactive

Switch an app off by tapping it. This will make it inactive so it uses no more resources. When you tap on an inactive app's icon it will relaunch instantly with no further input required.

Control your phone with gestures

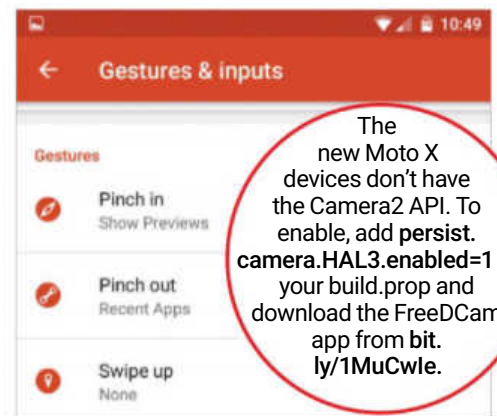
TIP 3

Make your big phone usable with one hand



1 Change the homescreen

The Nexus 5X is larger than the Nexus 5 and is less comfortable to use with one hand. However, by switching to a different launcher you can enhance its usability. Download and install Nova Launcher from the Play store to start.



The new Moto X devices don't have the Camera2 API. To enable, add `persist.camera.HAL3.enabled=1` to your build.prop and download the FreeDCam app from bit.ly/1MuCwle.

2 Configure gestures

Open the Nova Settings app and scroll down to Gestures & inputs. Under the Gestures section you can assign functions to specific swipes – such as swiping down anywhere on the homescreen to open the notifications pane.

Configure Doze for better battery life

TIP 4

Harness the power of Doze and extend your battery life even further

Managing inactive apps is a simple way of taking control of what is happening on your device. But if you want more power, then the root app Naptime, free from the Play store, is something you should look at.

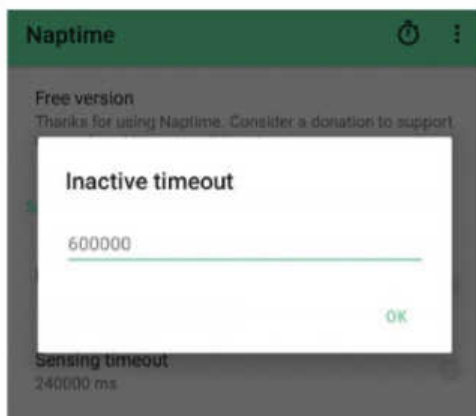
Naptime is an app for configuring Doze, the new power-saving feature in Android 6.0. Normally Doze just works, without

configurable options or a user interface – you wouldn't even know it existed if you hadn't read about it, but while it's a great idea it isn't perfect. Doze only kicks in when your phone is completely still and unused. Some people would like it to be a bit more aggressive to stretch their batteries further. Naptime does this and requires root.



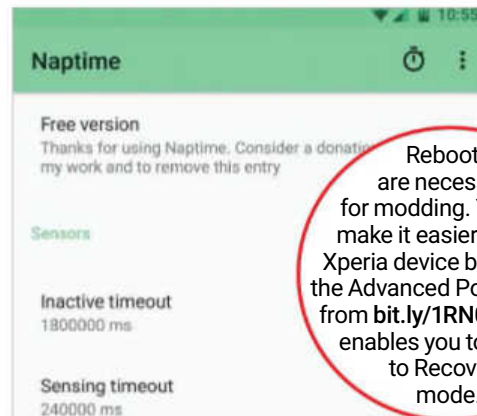
1 Understand Naptime

Naptime plugs right into the OS. This is where the labels for each of the settings comes from, so they aren't particularly friendly from the user's perspective. Thankfully, each one comes with its own explanation.



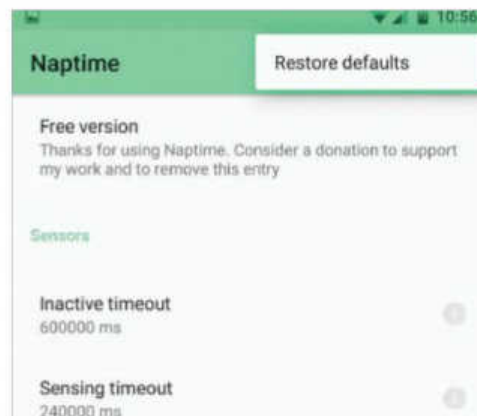
3 A new length

The values are set in milliseconds so 60,000 equals one minute. Decreasing the Inactive timeout value makes Doze kick in sooner so it saves power quicker, but this also means the sensors are being used more often to check.



2 Start experimenting

Tap the box next to an option and type in a new value. Hit the disk icon to save and apply it. For example, Inactive timeout measures how long before the OS decides to check whether the phone is inactive by using various sensors.



4 Tread carefully

Change only one or two values at a time to see if there is any noticeable impact on battery life (either good or bad). Tap the menu button and hit Restore defaults to undo all of your changes and return to normal.

Reboots are necessary for modding. You can make it easier on your Xperia device by flashing the Advanced Power Menu from bit.ly/1RN0XEY that enables you to reboot to Recovery mode.

TIP 5

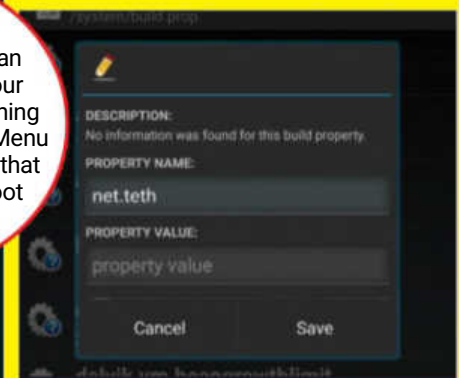
Unlock tethering on a Nexus

Tethering is locked on some versions of the new Nexus phones on some networks. Here's how to get it back.



1 Build Prop Editor

Go to the Play store and download Build Prop Editor. This free app needs root and it enables you to edit the build.prop system settings file on your Android device.



2 Make your tweak

Tap the + icon to create a new Property Name labelled net.tethering.noprovisioning, then set the Value to True. Save your changes and reboot your phone for it to take effect.



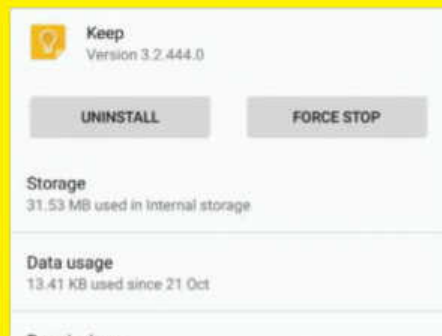
3 Test tethering

You can now test whether tethering works properly. You should always make a backup of the build.prop file before you edit it so that you can restore if there are any problems.

TIP 6

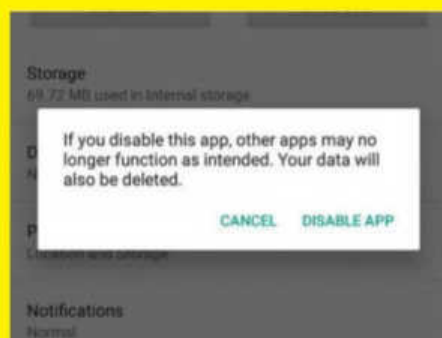
Disable and remove bloatware from your Nexus device

Nexus phones have far less bloatware than devices from other well-known manufacturers, but they still come with plenty of Google apps installed.



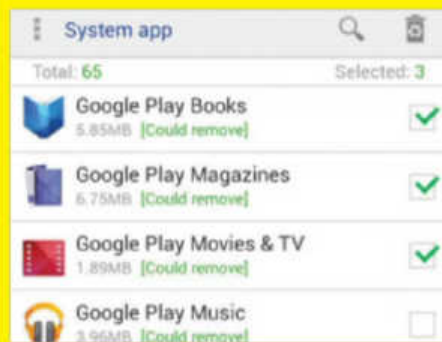
1 Uninstall select apps

Some Google apps can now be uninstalled without root, such as Google+, Keep, Newsstand and the News and weather app. Go to Settings>Apps, tap each one and hit Uninstall.



2 Disable System apps

Key apps like Calendar or Chrome can't be uninstalled, but can be disabled. Find them in Settings>Apps and hit Disable. This will uninstall updates and hide the app from the system.



3 Uninstall fixtures

Download System App Remover if you have root and want to remove apps you can't normally touch. This is useful on LG and Samsung phones, where apps can be moved to the SD card.

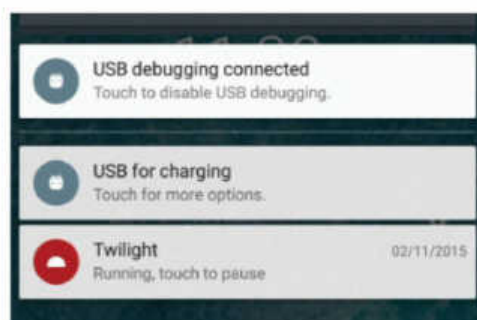
Get more from USB-C

TIP 7

Make sure you're fully compatible with the new Nexus connector

Both the new Nexus phones have **USB-C ports instead of microUSB**. This is set to become the new industry-wide standard, but until we've upgraded all of our devices it's going to be a little inconvenient. Especially as the Nexus 5X only ships with a USB-C to USB-C cable. Fortunately, cables can

be picked up cheaply from eBay, as can tips that will make your existing microUSB cable compatible. You can safely use any cable, but will need to use the plug supplied with your Nexus if you want to make use of the Quick Charge feature in the devices. Trickle charging via a laptop is also much slower.



1 Connect to a PC

When you connect your Nexus to your PC via a USB-C cable, it will default to charging. Pull down the notification shade and tap USB for Charging to enable it to be read by your PC.



2 Understand modes

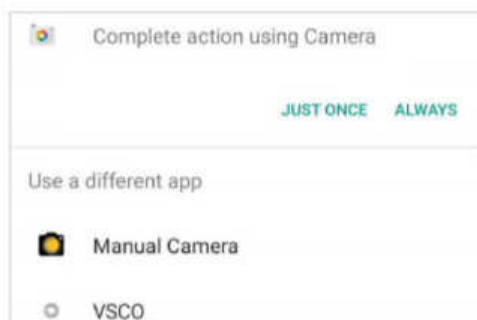
To connect to the PC tap File transfers – you'll need the Android File Transfer app. With Power supply mode you can charge another device and PTP makes the phone function as a camera.

Shoot high-quality photos

TIP 8

Marshmallow phones can shoot photos in RAW, but you need apps in order to capture and edit them

The quickest way to speed up an Android phone is to shorten the animation speeds in Developer options. Reduce Window Animation Scale, Transition Animation Scale and Animator Duration Scale to .5x and your phone will be much snappier.



1 Manual Camera

The Manual Camera app is best for shooting RAW images on a Nexus phone. Grab the app from the Play store then double press your phone's power button to set it as your default.



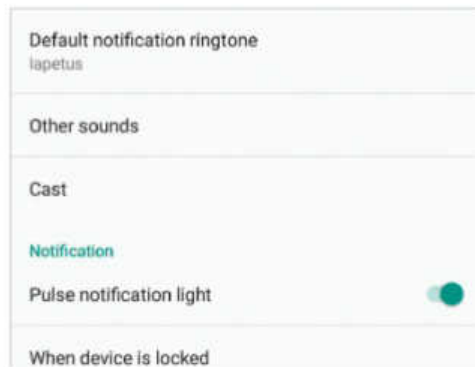
2 Shoot in RAW

Tap the Settings icon and hit the JPEG button to shoot in both JPEG and RAW – this saves a sharable image plus a high-quality one. You can edit RAW images in Snapseed.

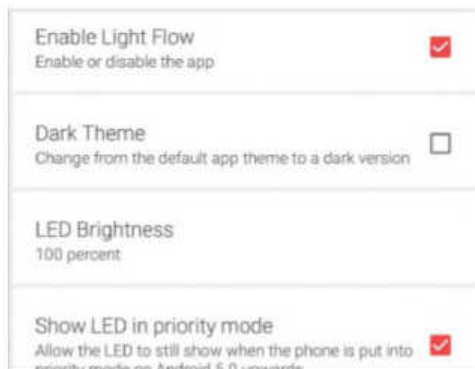
TIP 9 Control your LED using Light Flow

The new Nexus phones have LEDs for notifications. You can make them more useful using Light Flow

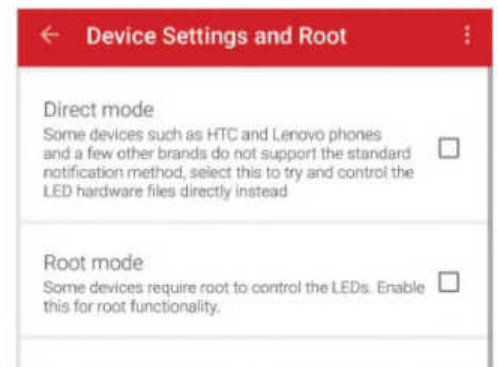
Light Flow requires notification access, which can be a privacy risk. It's okay here, but you shouldn't grant the permission unless you absolutely trust the app.



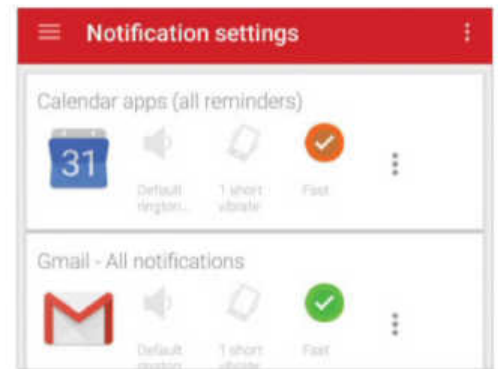
1 Get started
For some reason the LED is turned off by default. Turn it on by going to Settings>Sound & notification and tapping Pulse notification light. Next head to the Google Play store and download the Light Flow app.



3 Set up an app
Go into Settings and Enable the Light Flow app. Next tap the + icon in the bottom-right corner. Walk through the steps that appear in order on your screen, picking an app then assigning a colour for the light as desired.



2 Grant root permissions
Light Flow works with or without root permissions, but it is definitely more powerful with root. You can enable this in Device Settings and Root in the settings area for the Light Flow app. Grant them when prompted.



4 Sounds and more
Light Flow isn't just limited to the LED. You can add different sounds and vibration patterns to all your apps as well. Ideally you can set it so you know which app a notification has come from without touching the phone.

TIP 10 Reflash a factory image

Want to get everything back to how it was before? Reflash the factory image and you're done

One of the things that makes Nexus phones so hackable is that Google publishes factory images. This is the original software and by flashing it you return your phone to its untouched, unrooted state. Whether you want to sell your phone or recover from a serious problem, this is a simple solution. Note that flashing it by default wipes the phone and internal storage, so make sure you back up everything you need. Download the image from developers.google.com/android/nexus/images?hl=en.



1 Load up fastboot
Download the image, connect your phone and launch the bootloader. In a command line or Terminal window change the directory to the location you've stored fastboot. Now type `fastboot flash-all`. The factory image will begin flashing. It'll take a few minutes.



2 Lock the bootloader
To lock the bootloader again, repeat the steps you took for unlocking it. This time though, type `fastboot oem lock`. As before, this wipes everything, including your phone's internal storage. Your phone will now be in a perfect, factory-fresh state.

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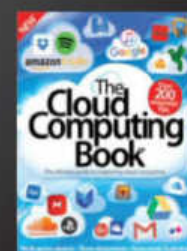


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status update

Which devices are best for the hacking scene?

HTC One (M9)

Rooted?: Yes
Active Development

HTC has long provided phones that are good for hacking and developing, and the latest is no exception.



Nexus 6

Rooted?: Yes
Active Development

If you want a good phone to start your hacking career with then the Nexus 6 is rooted and has a great selection of custom ROMs available.



LG Watch Urbane

Rooted?: Yes
Active Development:

For wearables, active hacker development on the Urbane is high, but also limited to a TWRP recovery image and an unofficial kernel.



Sony Smart Watch 3

Rooted?: Yes
Active Development:

Perhaps the best thing about rooting this smartwatch is that the bootloader doesn't need unlocking first.



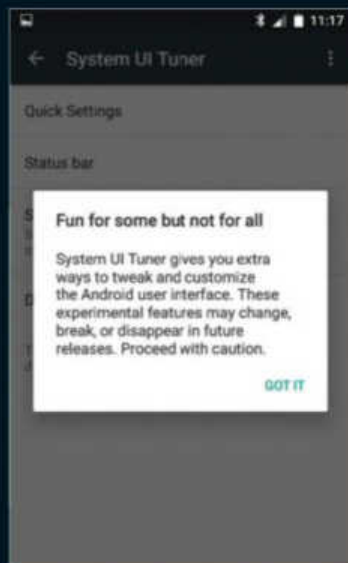
Tips & Tricks

Tweak M with System UI Tuner

Using Android 6.0 Marshmallow preview or fortunate enough to receive the full upgrade? Activating the System UI Tuner is a good idea as it adds some Google-approved tweaks to the user experience.

Enable by pulling down the notification area and long tapping Settings for around five seconds. Upon release, you should see a message confirming that System UI Tuner has been added.

Open Settings to review the tweaks on offer, noting the



To add System UI Tuner, long tap Settings

message to Proceed with caution.

Among the options is the ability to reconfigure the Quick Settings pull-down menu, toggle what icons are displayed on the Status bar and activate an embedded battery percentage value in the Status – this can prove very useful!

Want to disable System UI Tuner? Tap the menu button and choose Remove from Settings.

Take a doze for more battery life

Running in the background of Android Marshmallow is Doze mode, a system that ensures your phone or tablet has a good rest while not in use. You don't need to do anything to activate Doze, other than upgrade to Android 6.0 on your device.

Basically, all you have to do is leave your phone alone. Doze won't work in your pocket thanks to the motion sensors detecting movement. If items are moving across the phone's front camera or light sensor, movement will be detected causing Doze not to activate.

Instead, your phone needs to be kept still. Just put it down on a desk or shelf with the display off. Only phone calls, SMS messages and anything else classed as high priority will be received and Android will consume minimal battery. This is probably the least technical tweak



Doze can significantly increase battery life

ever, but without following these steps, Doze won't work.

Expand RAM with an SD card

While the main use for an SD card is to expand your device's storage, it is possible to use a portion of it as additional RAM to improve Android's system performance.

Available from the Play store for £6.99/\$9.99, Roehsoft RAM Expander (SWAP) works on rooted phones and has a checker app, called MemoryInfo & Swapfile Check, that should be installed first to confirm that the main app will be able to run on your Android phone.

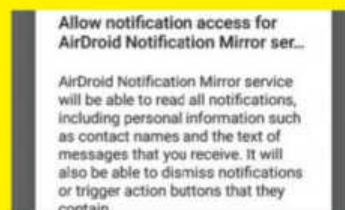
quick hacks

To get more from mirroring use AirDroid 3

The latest version of AirDroid has been out since January 2015 and offers a feature called AirMirroring. Windows and Mac users can take advantage of this if their PC and rooted Android device are connected to the same network.



1 Install AirDroid to PC
Head to airdroid.com/en/ and download the AirDroid desktop client. Install while ensuring your firewall gives the necessary permissions. If you don't have AirDroid on your device then download from Google Play.



2 Enable notifications
Open Settings and scroll to Notification Mirror service. Check that AirDroid Notification Mirror is enabled where you will see any notifications on your desktop whether you're using the mirroring feature or not.



3 Start AirMirror
Once signed into AirDroid, activate AirMirror via the AirDroid 3 app – click the binoculars icon on the left. It will check for root permissions first then you can view your device remotely!

Share your tips

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qa@littlegreenrobot.co.uk
Discovered anything good about your Android phone? Let us know!



Check if your device can run the expander

Tap Start Ramexpander Test Here in the checking app, select your SD card and then Click for result. If the results are favourable then you can install the main app.

Once running, select the Optimal Value for the swap (this can be adjusted later), remembering to ensure that Autorun is enabled. Finish by tapping Swap Active.

Mirror on Windows, OS X or Linux

Keeping tabs on notifications and other alerts on your phone usually means getting the device out of your pocket. However, if you're in a scenario where your attention is wholly on your computer's display, you might miss something important.

Mirroring your Android device with your computer is a good solution and if for some reason you haven't rooted your device, you can employ Vysor (a Google Chrome extension available



Use Vysor to mirror your phone to your PC from [vysor.io](#) that's compatible with Windows, Mac and Linux computers.

With Chrome installed on your desktop, grab the extension and connect your Android device using a USB cable, remembering to enable USB Debugging in Settings>Developer Options.

Use the Chrome App Launcher to open Vysor, click Find Devices and select your Android device. You can then easily control your phone or tablet using your keyboard and mouse; the response is fast thanks to the USB cable.

Cast to TV with your screen off

One of the more irritating things about casting from Android Chromecast is that some apps don't have a Chromecast button. This means that you have to use the native Cast option in the pull-down menu in order to stream, say, *The*

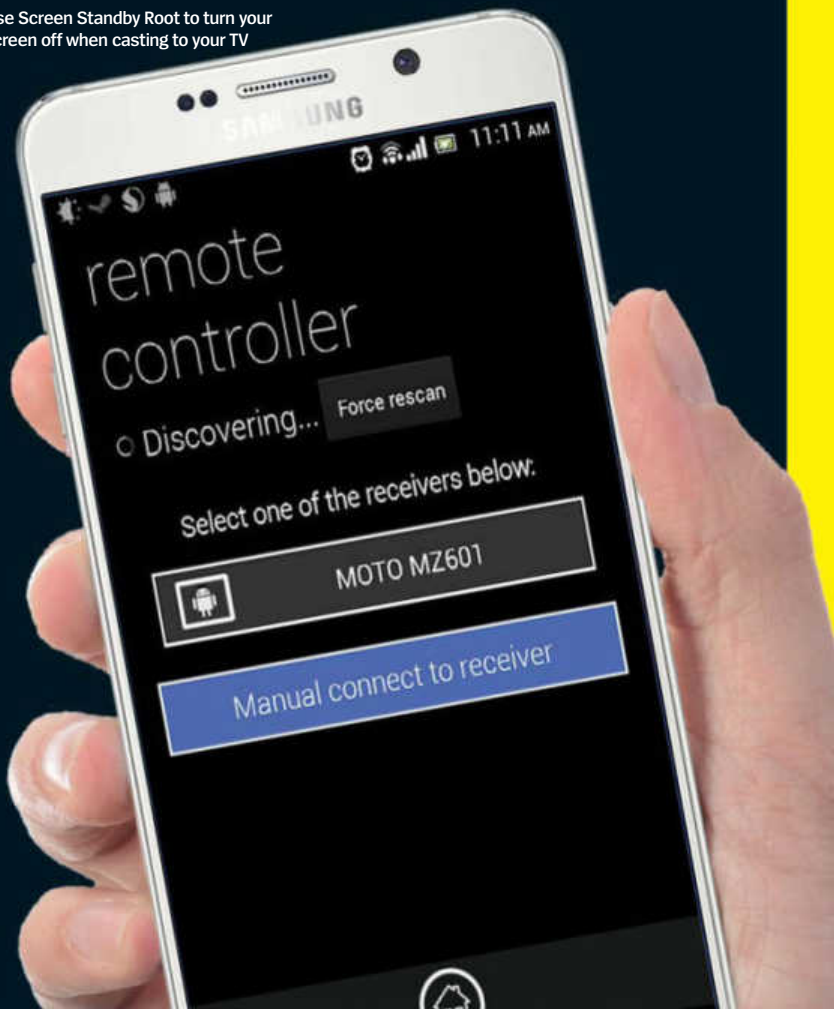
Gadget Show on 50D from your Android device to your television. The Cast option means keeping the Android screen on, which will then drain your battery.

However, you can avoid this drain with the very useful Screen Standby Root app for rooted devices, which is available from the Google Play store. Promising a battery drain of just two per cent (rather than the more usual 30 per cent), Screen Standby will

Use Screen Standby Root to turn your screen off when casting to your TV

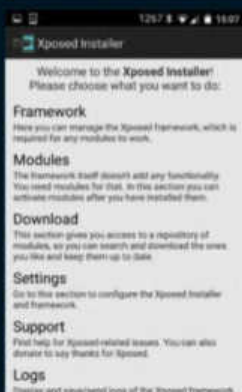
basically make it possible to send your Android desktop to your Chromecast with your device's display switched off.

Ideal for anyone watching television or films with apps that don't support Chromecast, or even for gaming on a big screen, Screen Standby is also pretty useful if you are downloading a large file and want the screen off without putting Android to sleep.



Hacking the easy way

Get great new features without getting your hands (too) dirty



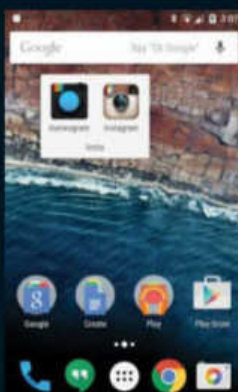
Xposed for Lollipop

Price: Free

From: XDA-Developers

Need root? Yes

Access a whole host of useful enhancements for your Android usually only found in custom ROMs by installing the Xposed framework. Power button, lockscreen, dialer mods and much more are available.



Instwogram

Price: Free

From: XDA-Developers

Need root? No

Instwogram is an Instagram clone that lets you sign in and post photos and videos to two accounts simultaneously. This aims to end any frustrations you may have about running multiple Instagram accounts at the same time on your phone.



Gravity Screen

Price: Free

From: XDA Developers

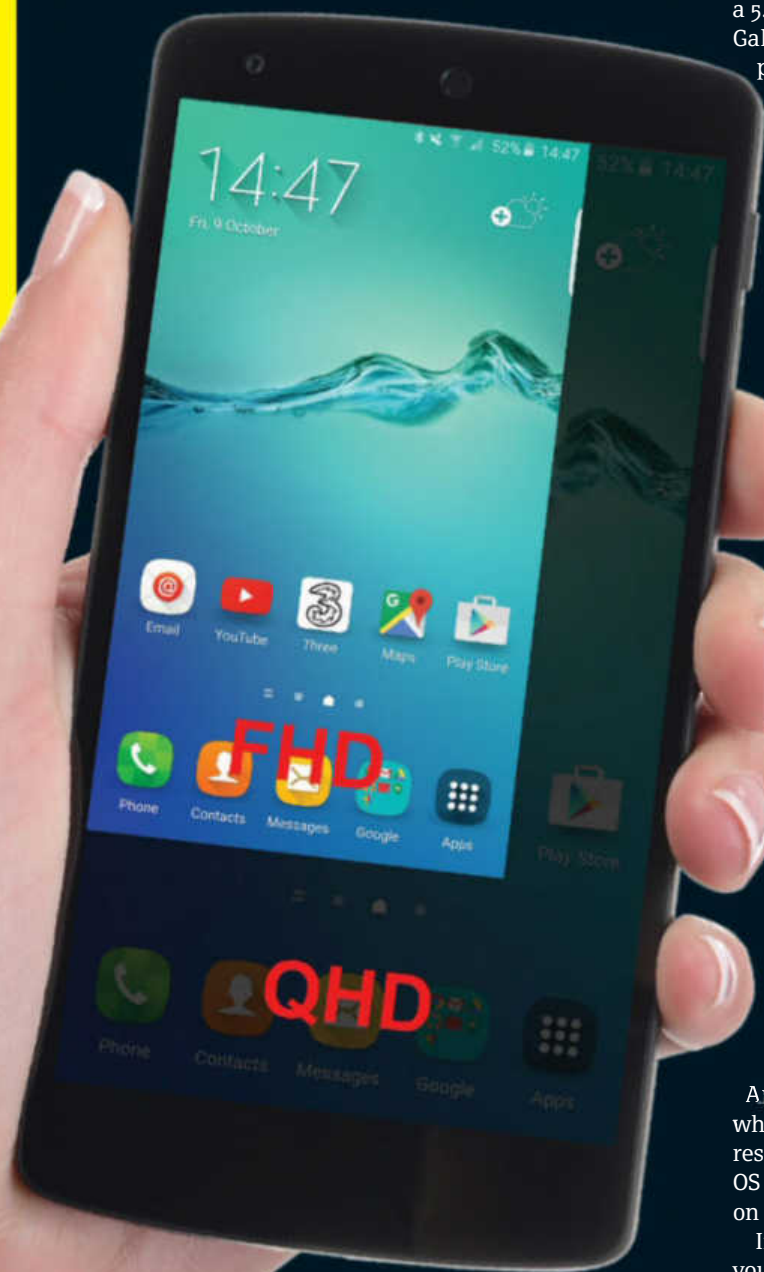
Need root? No

Save your power button with this automatic screen on or off tool that immediately adjusts your screen to save battery power. It uses proximity, light and motion sensors to detect your phone's position and toggle the display as needed.

Works with » Android 5.0 Difficulty » Advanced

Improve your battery life

Running your QHD device in full HD mode can make a huge difference to your device's performance

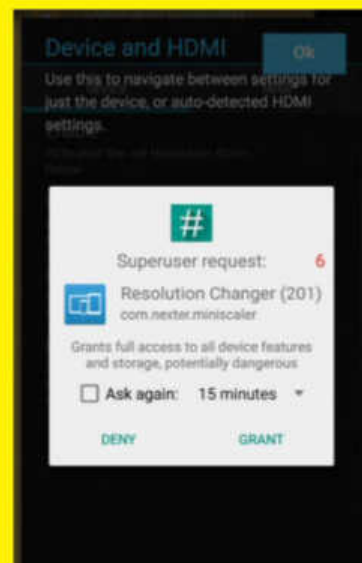


A lot of flagship devices now feature a QHD screen with a resolution of 1440 by 2560 pixels. As the name suggests, this is equivalent to four times HD and on a 5.1-inch screen (as seen on the Galaxy S6), it equates to around 577 pixels per inch. Even compared to full HD (1920 by 1080), QHD offers over 1.6 million additional pixels! While this is extremely impressive, the reality is that for many people there is actually no visible difference at this small screen size between the full HD and quad HD. Indeed, this is why many manufacturers have opted to stick with full HD resolution screens for their flagships.

While the benefits of such high resolution displays are arguably minimal, there are definite downsides. Driving such a high resolution display puts additional load on the system components, primarily the graphics processor and memory, which in turn can lead to reduced performance and battery life. Particularly when gaming or using similarly intensive apps, having to deal with so many additional pixels can have a real impact on the experience.

Thankfully, if you are a user who is comfortable with some relatively basic hacking of your Android device, there are ways in which you can revert to a lower resolution. This can be done for the OS as a whole or for some devices on a per-app basis.

If you use a FHD device already, you can drop to HD in the same way for similar benefits.



1 Root and back up

The resolution settings for your device are stored in a file located on the system partition of your Android device that is read-only by default. To edit the file, you have to root your device. Before doing so, ensure you have a way to return to stock as editing the file may prevent OTA updates from being applied.



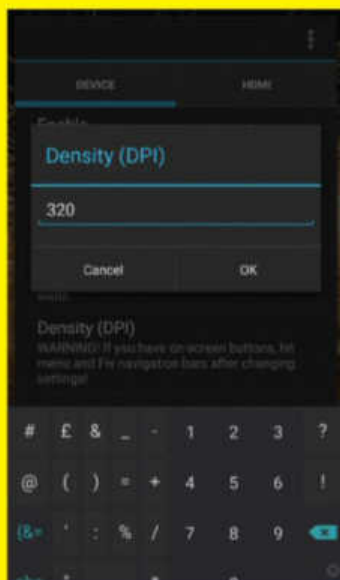
6 TV or monitor connections

One situation where you might particularly want to customise the resolution of your device is if you are connecting to a monitor or television. Resolution Changer Pro (see step 4) enables you to choose an additional resolution to be applied when an external display is connected.



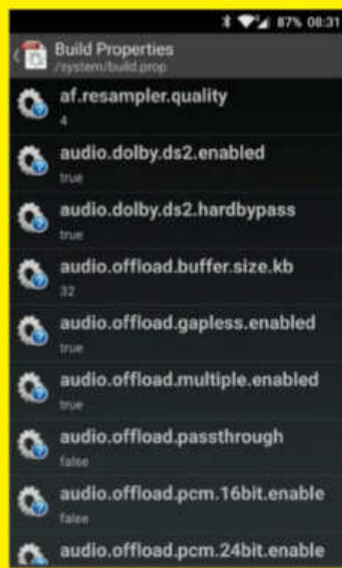
2 Manually edit the build.prop

You can manually edit the /system/build.prop file to change your device's resolution. To switch from QHD to FHD, adjust the ro.lcd_density line to 480 and the width and height lines to 1080 and 1920 respectively. Be warned, change the build.prop with care!



7 Density adjustments

After you have changed your resolution, it's worth investigating the effects of just changing the density. A higher density shows more data on the screen, but be aware, not all apps will perform correctly at custom densities so trial and error may be needed!



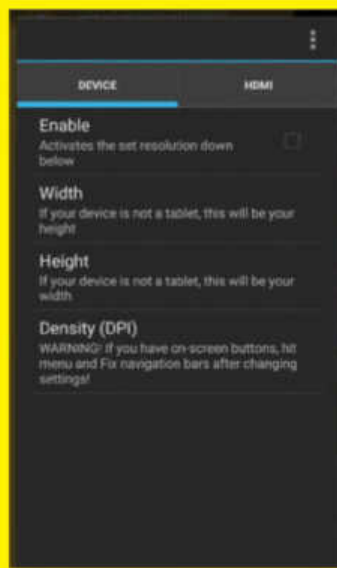
3 Use a build.prop editor to be sure

If manually editing the build.prop file is too daunting – and be aware, an error in the file can easily cause your device to boot loop – there are a number of build.prop editors available on the Google Play store. Build Prop Editor (Free) by JRummy works well for a safer modification.



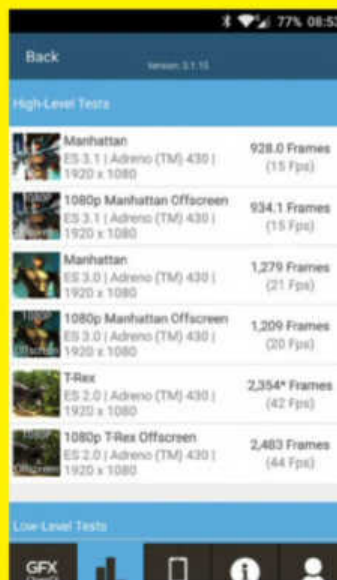
8 Check screen resolution

After you have applied your updates and rebooted (changes don't take effect immediately), everything will probably look the same! To be sure your changes have been applied, use an app such as Screen Resolution & Specs by K. Lee, free from the Play store.



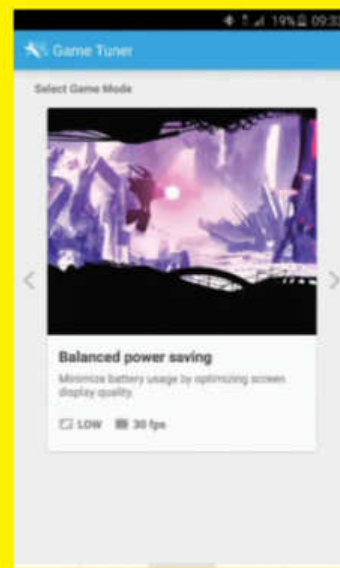
4 Resolution Changer Pro

Resolution Changer Pro, also free on the Play store, is an app that is dedicated to changing your display's resolution. Remember when you make modifications that the width and height values are based on a portrait orientation for phones and landscape orientation for tablets.



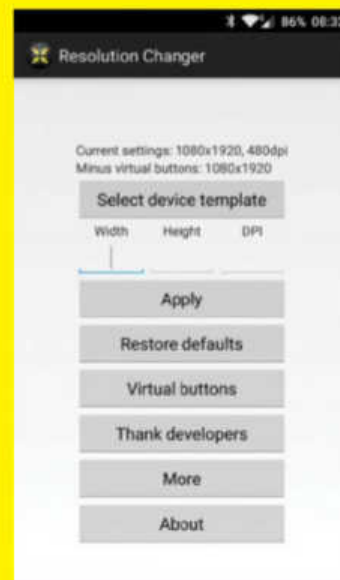
9 Benchmark improvements

Another interesting step to take is to use benchmarking tools to see what level of performance improvement is being experienced. Since lowering the resolution will decrease the load on the graphics processor, GFXBench is a good tool to use to measure changes.



5 Samsung's Game Tuner

If you have a Samsung device and you only wish to modify your device resolution for gaming, then you are in luck! Samsung has recently released Game Tuner via the Play store to permit custom resolution and FPS settings on either a universal or a per-game basis.



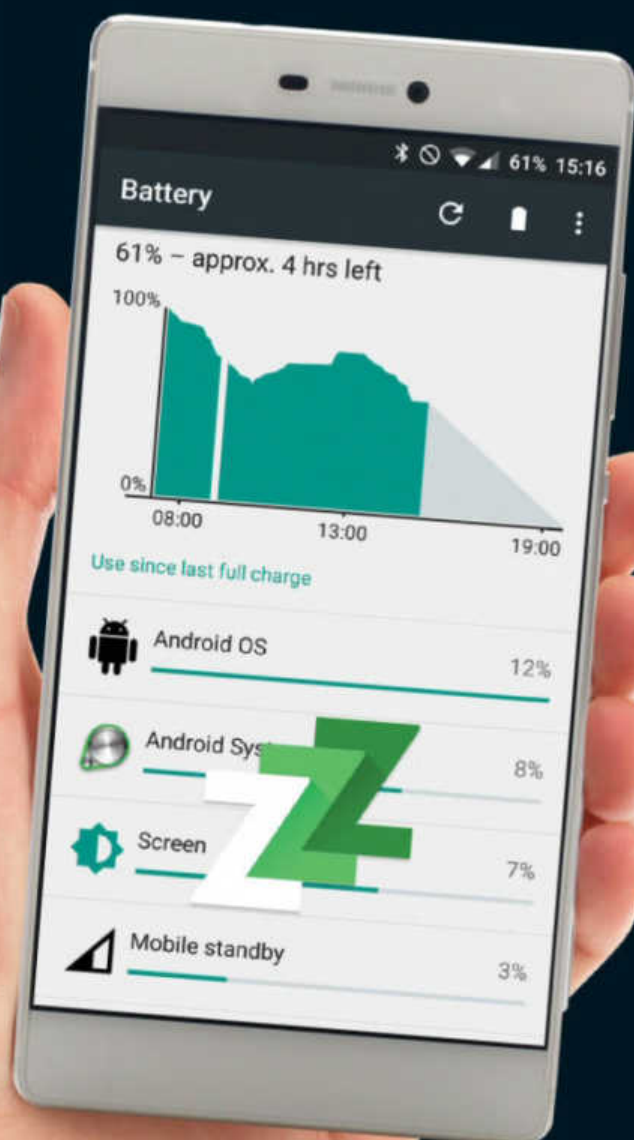
10 Make temporary changes

Although build.prop changes are only applied after boot, some tools use Android shell commands to apply changes with immediate effect, which is ideal for testing. NOMone Resolution Changer from the Play store is an ideal app for experimenting with densities.

Works with » Android 4.1 and up Difficulty » Easy

Take a nap to stop wasting battery life

Power Nap from Xposed improves battery life on your device with Sony Stamina-like features

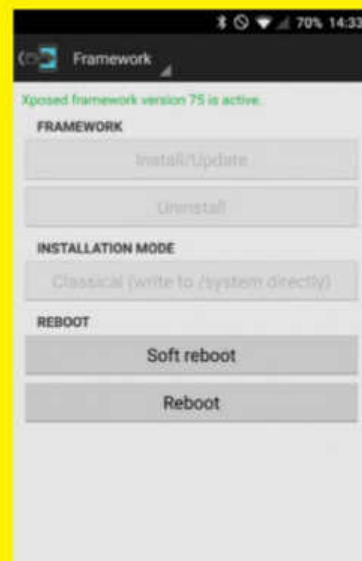


Your Android device is rarely idle.

As well as the multitude of applications you're likely to have installed, there are often lots of system background processes running at the same time. The result of this is that compared to some other mobile operating systems where background tasks are more tightly controlled, Android battery life can be very disappointing, although it is easily the most flexible operating system available.

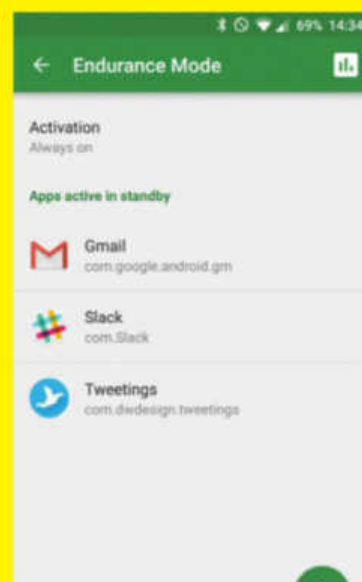
Some manufacturers have added their own utilities to the base Android OS to try and improve battery life. The best example of this is Sony's Stamina and Ultra Stamina modes that provide a much improved granular control of background processes. This is great, but it doesn't help those Android users who use a device from another manufacturer. Power Nap tries to fill this gap.

Implemented as an Xposed module, Power Nap is inspired by Sony's Stamina mode, but it will work on any rooted device from Android 4.1 onwards with the Xposed framework installed. When your screen is off, Power Nap can stop services, alarms and wakelocks from waking the device from sleep, consequently massively improving battery life. Of course, your preferred apps can be whitelisted so that you still receive notifications when the screen is off (particularly important if you are using a smartwatch), but those power-hogging apps you often don't even realise are running will be stopped. Together with a good monitoring app such as GSam Battery Monitor, it restores complete control of your device to you.



1 Install Xposed

Power Nap is built on the Xposed framework to give low level access to system functions. Xposed is compatible with devices up to Android 5.1.1 as Marshmallow isn't currently supported. Downloaded from the forum at XDA-Developers, Xposed consists of an APK and a ZIP file installed using a custom recovery.



6 Endurance Mode configuration

Aside from enabling and disabling the Endurance Mode, it's also possible to set an activation preference (a battery percentage and toggle whether to enable when charging) and manage the app whitelist. Whitelisted apps stay active even when Endurance Mode is enabled.



3 Install and enable Power Nap

4 Endurance mode

5 The Low battery mode

7 Low battery settings

View statistics

Be alarmed!

10 Better together

55

The best budget phones

The bargain battle is beginning to heat up so we stack up four of the top phones available on the market for under £170

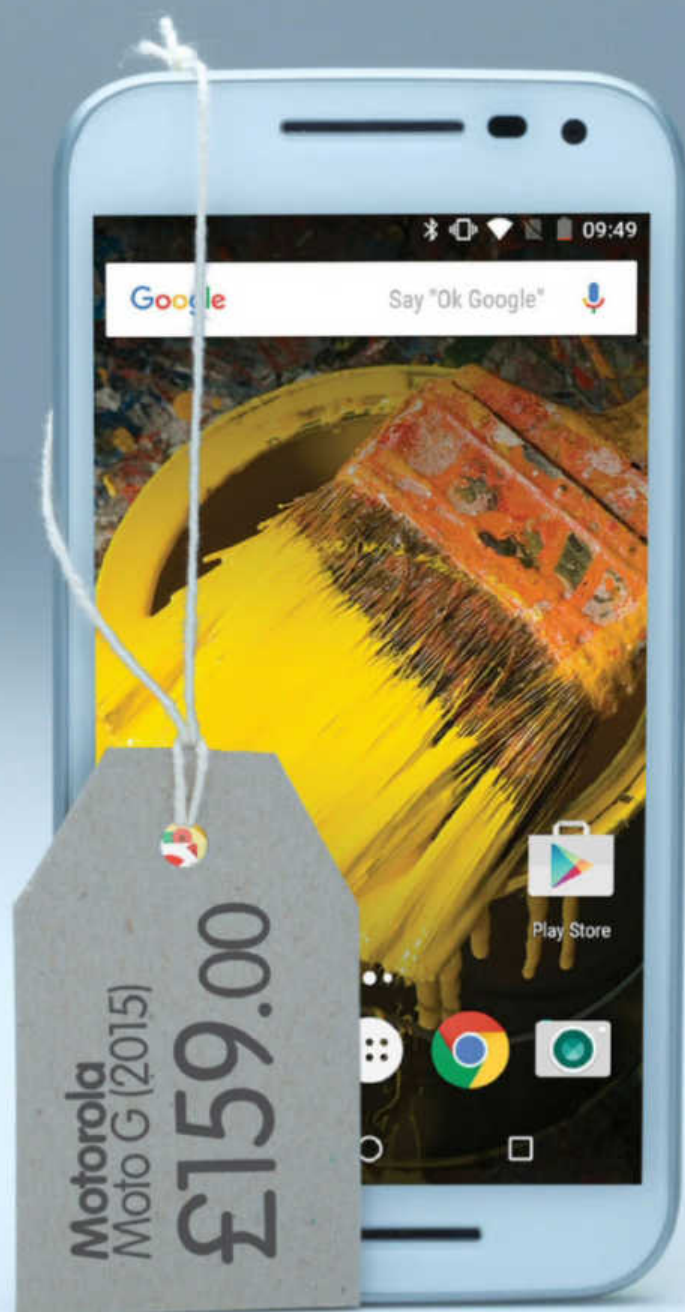


Cheap phones are no longer naff 2G bricks. They're sleek, well-designed handsets that have nearly as much processing power and screen quality as phones that cost three or four times as much as their budget label. The technology in high-end phones quickly filters down to the cheaper models because the production and development is already in place, enabling the likes of Samsung, LG and Motorola to repackage existing software and hardware into a much cheaper device.

Market pressures have also forced a change. The likes of Huawei, Xiaomi and OnePlus have carved a huge niche by making phones with

good specs and selling them online by themselves really cheaply. This has forced others to follow suit and we are reaping the benefits.

We have judged the Wileyfox Swift, LG G4c, Moto G (2015) and the Vodafone Smart speed 6 as some of the highest quality phones freely available to the Western audience at a much lower price than you'd pay for their flagship siblings. These phones represent great options as maybe a second mobile you could use for work, an entry-level handset that would make an ideal first smartphone or an inexpensive device to take travelling where you still need smartphone capabilities, but don't want to risk your shiny S6 or G4. »



LG G4c information

Price **£169.99/\$TBA**

» More information lg.com

» Supplied by **Clove Technology**

technical specs

» Operating system.....**Android 5.0**

» Processor.....**Qualcomm Snapdragon 410
1.5GHz quad-core**

» Memory.....**8GB storage / 1GB RAM**

» Dimensions.....**139.7 x 69.8 x 10.2 mm**

» Weight.....**136g**

» Display size.....**5-inches**

» Display resolution.....**720 x 1280 pixels (294 ppi)**

» Connectivity.....**Wi-Fi, Bluetooth 4.1, NFC**

» Camera.....**8MP rear, 5MP front**

» head-to-head

Benchmark score

The G4c returned a pretty miserable score, being beaten by the Vodafone that costs a quarter of its price. It also had a shoddy RAM speed rating, something that is noticeable when using the device.

Looks

The G4c is certainly the most attractive device of the four in this test, looking sleek, sharp and taking a lot of inspiration from its suave flagship brethren. It's a shame the one-watt speaker is on the back where your hand usually sits.

Value for money

This is the most expensive phone in the test, yet it's tricky to see how it can justify being so expensive with only middling cameras, specs and materials. Remember that the LG name is a big draw.

Cameras

The cameras are distinctly average. They are better than expected, but it's unlikely you'll take any amazing pictures. Functional and acceptable are probably the best words to describe them.

» Verdict

This is a reliable phone, but it's the most expensive of the four due to the brand. It won't let you down, but it won't bring much joy either



Copy cat

Visually the G4c is similar to the G4, coming in a range of similar styles including the grey crisscross patterned back, but it has a strange cut out at the top for the speaker

Plenty of juice

You can comfortably get a day's use out of the LG G4c's 2,540 battery. It may be average in size, but it benefits from not having a detailed screen or a big processor to power, which would drain it quickly

Storage woes

The 8GB storage is a real oversight from LG, which surely has the technology to potentially double that. The preloaded apps eat a long way into that allowance so you're left with barely anything

LG G4c

Can the mini LG G4 do as well in the budget market as its bigger brother did in the flagship shoot-out?

The LG G4c has quite the advantage in this face-off because it has the benefit of being moulded on one of the best phones of the past 12 months. Taking design inspiration from the stunning LG G4, it has an instant head-start on its rivals because it has a look that we are really fond of. It sports both LG's signature curved back and the buttons placed on the back of the handset are in easy reach.

The G4c runs Android 5.0 Lollipop, but it only comes loaded with 1GB RAM and 8GB storage, so is the least well equipped of the four devices in terms of power and internal storage, although it can be boosted to 128GB with a microSD card. Without it though, we were left with less than 3GB available storage once preloaded apps were added. This really isn't enough for anything other than extremely light use, so the SD card is unfortunately essential.

The Qualcomm Snapdragon 410 isn't the most powerful and transitions are fairly sedate, but we didn't experience any serious lag when gaming or

scrolling through the web and there were no overheating issues until we'd been playing a graphics-heavy game for a good half an hour.

The 720p five-inch screen is bright with an impressive colour saturation, but you can notice a lack of sharpness when viewing videos and photos. As LG usually has impressive screens, we would have thought that it could have upped this to 1080p to add that little extra wow factor, considering there isn't a whole lot in the G4c to really get excited about.

Probably the highlight of the G4c is its cameras, which belie their average 8MP and 5MP resolutions by producing high-quality images. The addition of a flash on both the front and back means that you will always get well-lit photos, avoiding a common issue often found with the cheaper kind of phone.

This is a solidly made, good-looking phone with very middle-of-the-road specs. You'll be well served for updates and LG's tech support, but you are unlikely to fall in love with it.



Moto G (2015)

The future's bright and sunny for Motorola's dynamic king of the budget phones

Motorola has been the king of the budget phone ever since it brought out the Moto E and Moto G – two models that really moved the goalposts in the budget phone world. These handsets made people realise they didn't need to pay top dollar for a good-quality phone with 3G and decent cameras, hence the race for the bottom was kickstarted.

The Moto G (2015) is the latest model in the range and boasts some impressive specs. It's running the same Qualcomm Snapdragon 410 processor as the LG G4c, but has twice the storage and twice the RAM at 16GB and 2GB respectively.

The rear camera is also excellent at 13MP with dual flash. It is actually the same camera as was used in Motorola's Nexus handset, so you know you're getting a seriously premium snapper. On the front you have a more-than-adequate 5MP camera that takes vibrant selfies, albeit not particularly sharp ones.

Design is a key part of Motorola's appeal and now Moto Maker, the manufacturer's phone

customisation store, has come to the Moto G range, enabling you to choose from up to ten colours and ten further accent tones. This design choice is a rarity in the budget market and means that you can have the style and individuality you want without breaking the bank for a top-of-the-range phone. The rubber backing certainly doesn't feel classy, but it does afford excellent levels of grip and this lack of material quality is more than made up for by the air of fun brought by those customisable backings.

The processor is more than capable of handling graphics-rich games without lag and these graphics appear crisp on the G's 5-inch 720p screen, which is bright, with superb viewing angles and a really stunning colour range.

There is a lot to love with the new Moto G (2015) and Motorola has successfully risen up to the challenge of its rivals by creating yet another unique handset that you can have confidence in and enjoy using at a very reasonable cost.

Screen quality

We're very impressed with the standard of the screen. Even though it measures just 294ppi, the colours and brightness are both impressive, bursting off the screen with energy

Tinny speakers

Despite the fact the Moto G is blessed with dual front-facing speakers, the sound it produces isn't as good as we would have hoped. The audio is loud, but a bit on the tinny side

Moto G (2015) information

Price **£159/\$179.99**

» More information motorola.com

» Supplied by **Motorola**

technical specs

» Operating system.....**Android 5.1**

» Processor.....**Qualcomm Snapdragon 410 1.4GHz quad-core**

» Memory.....**8/16GB storage / 1/2GB RAM**

» Dimensions.....**142.1 x 72.4 x 11.6 mm**

» Weight.....**155g**

» Display size.....**5-inches**

» Display resolution.....**720 x 1280 pixels (294 ppi)**

» Connectivity.....**Wi-Fi, Bluetooth 4, NFC**

» Camera.....**13MP rear, 5MP front**

» head-to-head

Benchmark score

The Moto G (2015) comes a very narrow second to the Wileyfox Swift in the benchmark test, but ranks much higher for RAM operation and storage. It is still some way clear of the other two models.

Looks

It might not be the prettiest phone in the world and maybe it looks a little like a kid's phone, but there's no denying the Moto G (2015) looks striking and you can make it as individual as you like.

Value for money

It is only a little cheaper than the G4c, but it boasts better specs and is a brand that you know and trust. The camera quality and Moto Maker means that you get a lot of quality for a reasonable price.

Cameras

The rear-facing camera is the best here. Sharp, clear, dual-flash and a great HDR mode makes this an excellent snapper, with a fair front-facing camera after both were upgraded from the previous model.

» Verdict

Motorola knows exactly what it's doing with its budget phone range. Cheap, cheerful with solid specs, the G (2015) is another success story



Wileyfox Swift information

Price **£129/\$TBA**

» More information wileyfox.com

» Supplied by **Wileyfox**

technical specs

» Operating system.....**Cyanogen 12.1**

» Processor.....**Qualcomm Snapdragon 410 1.2GHz quad-core**

» Memory.....**16GB storage / 2GB RAM**

» Dimensions.....**141.15 x 71 x 9.37 mm**

» Weight.....**135g**

» Display size.....**5-inches**

» Display resolution.....**1280 x 720 pixels (294 ppi)**

» Connectivity.....**Wi-Fi, Bluetooth 4**

» Camera.....**13MP rear, 5MP front**

» head-to-head

Benchmark score

The Wileyfox topped this test, narrowly beating the Moto G. It scored highly for its multitasking and RAM speed, so great for power users. The Snapdragon 410 and 2GB RAM have been put to good use.

Looks

We're not fully sold on the looks. It's a bit bland from the front with no design risks taken, as it is with the internals. The backing is a strange hard plastic and the fox's face is a bit scary. Nevertheless, the orange colour scheme is striking.

Value for money

At just £129 the Wileyfox is quite a steal. You get specs that are nearly as good as its more expensive rivals and a high-quality screen. The regular updates will be a great advantage for users too.

Cameras

While not quite up to the same standard as the Moto G (2015)'s cameras, these are still two really good snappers. The rear-facing one focuses extremely rapidly while the front is only a bit grainy.

» Verdict

The Wileyfox Swift ticks a lot of boxes and for a first-time phone has got a lot of things right with plenty of unique functions for users to enjoy



Wileyfox Swift

The new kid on the block has a very cunning plan to disrupt the market

Wileyfox swept into the budget market with a promise to shake things up and it really has made good on its promise with the Swift. The really exciting thing about this phone is the use of Cyanogen as the main operating system. It runs over the top of Android Lollipop 5.1.1 and gives its users that added level of security and customisation you simply can't have on any other kind of phone. It also updates your software on a weekly basis, so you're not going to be left hanging around for bug fixes and improvements. The OS is brilliant and so much fun to use. It is clearly a mildly tweaked version of stock Android, but with a vast array of theme and wallpaper options that are updated regularly so you're never going to get bored of your handset.

It's likely that a lot of people who are on the lookout for a budget phone aren't going to be massively into modding or rooting their device, so this would be perfect for those who want the customisation of a rooted handset without the risk or difficulty of actually having to root your precious phone.

So what of the phone itself? It has a five-inch 720p screen, which is exactly the same as the LG G4c and Moto G (2015), not to mention the same Qualcomm 410 processor. This is despite Wileyfox partnering with Qualcomm in the building of this device so they have missed a chance to get one up on its competitors by not putting a slightly more powerful processor inside. Having said that, it is nice, nippy, there's no lag when playing games and pixelation is kept to a minimum when watching any videos.

Visually from the front there is nothing really to distinguish it from the others, but on the back there is an ominous matt-black fox head, the Wileyfox name and an orange-rimmed camera.

This is a fascinating experiment, but it remains to be seen whether the budget phone buyers are willing to abandon their very familiar manufacturers and operating system for an unknown brand and an unusual fork of Android. Either way, this really is an excellent device for a very low price point that shouldn't be ignored by bargain hunters.

Hidden battery

Vodafone has taken the strange decision to seal in its 1,780mAh battery so you can't swap it out for a fresh one. Usually this is only a feature in premium metal phones, so we're a little bit surprised

Extra apps

Vodafone likes to preload its own apps, which would be fine if it had a bit more native storage, but unfortunately these apps take up a huge part of the 8GB storage available

Chunky monkey

The shape of the Smart speed 6 does feel strange and that thick frame isn't particularly enjoyable to hold. It is quite heavy for its size as well, so don't expect quality here



Vodafone Smart speed 6

Can the ultimate bargain phone catch up with the big boys?

When you're talking about budget phones, you can't get much more budget than £50 for a device.

Samsung is selling cases for the Galaxy S6 that cost more than the Vodafone Smart speed 6, so it has an awful lot of work to do to keep pace with the other options in this test.

Vodafone has had some recent success in making its carrier-exclusive phones, with the Smart ultra 6 in particular really impressing us with its 1080p screen and 2GB RAM. The Smart speed 6, on the other hand, is right at the opposite end of the spectrum and offers users a spectacularly cheap phone that Vodafone hopes can show enough to be considered along the likes of the Moto E and Honor Holly. However, with its 4G capability, could Vodafone be aiming a little higher?

The speed 6 is a really compact 4.5-inch phone, which is a size rarely seen these days, but it fits perfectly in the pocket and can be easily used with just one hand. Despite its small size it is the thickest of the four handsets and it is fairly weighty. The rear is

a smooth plastic finish and isn't as scratchy and nasty as similar models that we've tested in the past – a big relief. The corners are pleasingly rounded, but the capacitive buttons on the body look quite vulgar and a bit more thoughtful design work could have been put into these.

It's running Android 5.1, which is impressive for such a cheap phone as often the real budget devices will run a couple of Android versions behind the rest.

The screen is noticeably lacklustre with tired colours and fairly poor vertical viewing angles. Vodafone has made savings by only offering a screen with 480 x 854 pixels and it does show.

The cameras take surprisingly good images when stable and in pretty decent lighting conditions, but even the slightest camera shake or drop in light will make it go haywire.

It is a plucky little handset that is working hard to challenge its competitors and is surprisingly quick off the mark, but there are a lot of limitations with the hardware and build quality.

Vodafone Smart speed 6 information

Price **£50/\$TBA**

More information vodafone.co.uk
Supplied by Vodafone

technical specs

Operating system	Android 5.1
Processor	MediaTek MT6735M 1 GHz quad-core
Memory	8GB storage / 1GB RAM
Dimensions	132.2 x 65.1 x 10 mm
Weight	146g
Display size	4.5-inches
Display resolution	480 x 854 pixels (218 ppi)
Connectivity	Wi-Fi, Bluetooth 4
Camera	5MP rear, 2MP front

head-to-head

Benchmark score

Unbelievably the speed 6 benchmarked higher than the LG G4c, registering impressive scores for its RAM speed. Its storage also ranked higher, so this is definitely something to consider.

Looks

The speed 6 is right at the bottom of the pile for its looks. It's boxy, has some strangely designed buttons on the side and those capacitive buttons are hideous. The rear camera creates a tiny bulge too.

Value for money

You can't deny this is very good value for money. At just £50 you get 4G, a decent processor and the same amount of internal memory as the G4c. This could prove to be an excellent backup phone.

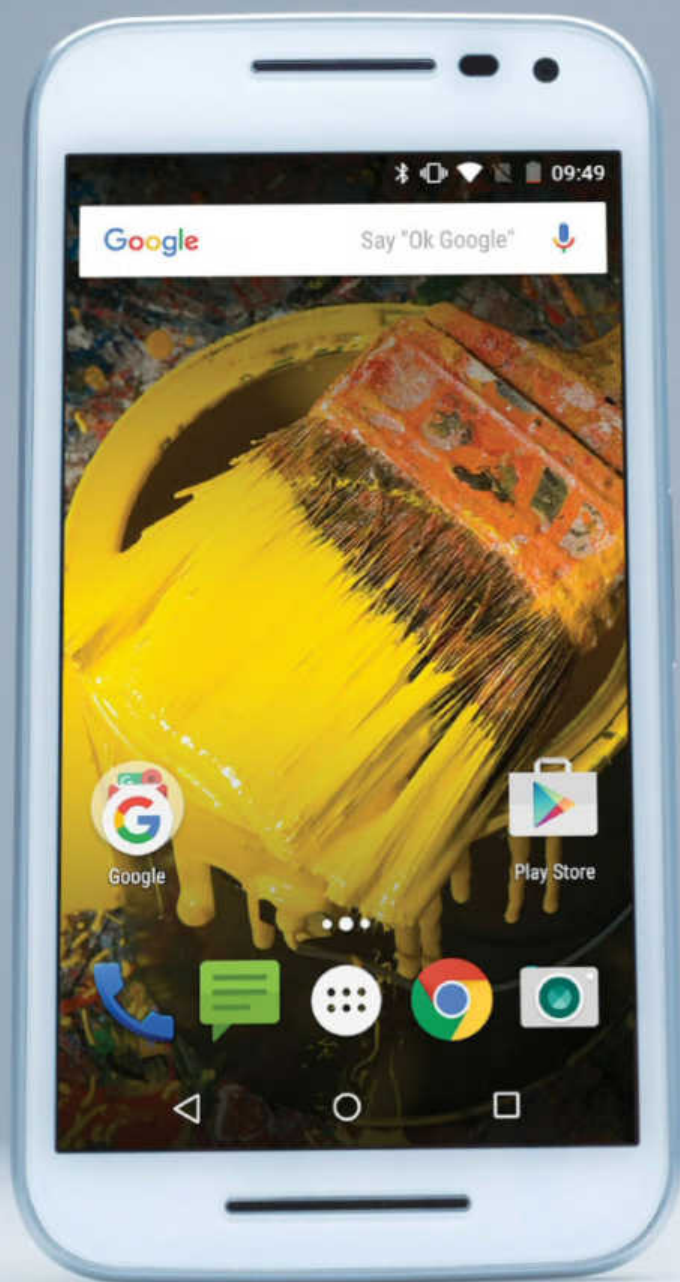
Cameras

These are very much lacking. 5MP and 2MP simply isn't enough these days, even accounting for the incredibly low price of the handset. You'll only take photos very rarely on this phone.

Verdict

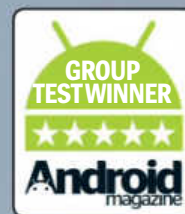
Don't expect too much from this £50 phone and it just might surprise you. Good on the inside, but not so impressive on the outside





The Winner...

Moto G (2015)



Just holding onto its position at the top of the tree is the Moto G (2015). Motorola's winning formula of good specs, funky design and a reasonable price point has paid dividends once again and the quality of the range has shone through. The screen is exceptional and the cameras were the best in the test. Its waterproofing also ticks another crucial box for features you would like to have in a cheap and cheerful phone.

Narrowly missing out on the top spot is the Wileyfox Swift. It has been a stunning debut for the new manufacturer and the specs stand up to its more established rival. However, it was lacking a little in camera quality, build and materials, so we would rather pay the extra £70 for the Moto and be confident in the product. However, we were pleasantly surprised with how close the Swift ran this particular race.

A fairly distant third is the Vodafone Smart speed 6. Although the LG G4c is a better phone in terms of specs, screen quality and camera quality, it certainly wasn't over three times as good and that is the price difference between the pair. Indeed, the Vodafone benchmarked higher than the G4c and as we're looking for phones that go above and beyond their price tag, the speed 6 certainly obliges.

That means that bringing up the rear is the LG G4c. We had such high hopes, but we were disappointed by mediocrity all round and a pitiful RAM speed result. For such a big brand, LG really needed to do better with its budget model.



	LG G4c	Moto G (2015)	Wileyfox Swift	Vodafone Smart speed 6
OS	Android Lollipop 5.0	Android Lollipop 5.1	Cyanogen 12.1	Android 5.1 Lollipop
Processor	Qualcomm Snapdragon 410 1.5GHz quad-core	Qualcomm Snapdragon 410 1.4GHz quad-core	Qualcomm Snapdragon 410 1.2GHz quad-core	MediaTek MT6735M 1GHz quad-core
Memory	8GB storage / 1GB RAM	8/16GB storage / 1/2GB RAM	16GB storage / 2GB RAM	8GB storage / 1GB RAM
Dimensions	139.7 x 69.8 x 10.2 mm	142.1 x 72.4 x 11.6 mm	141.15 x 71 x 9.37 mm	132.2 x 65.1 x 10 mm
Weight	136g	155g	135g	146g
Display size	5-inches	5-inches	5-inches	4.5-inches
Display resolution	720 x 1280 pixels (294 ppi)	720 x 1280 pixels (294 ppi)	1280 x 720 pixels (294 ppi)	480 x 854 pixels (218 ppi)
Connectivity	Wi-Fi, Bluetooth 4.1, NFC	Wi-Fi, Bluetooth 4, NFC	Wi-Fi, Bluetooth 4	Wi-Fi, Bluetooth 4
Camera	8MP rear, 5MP front	13MP rear, 5MP front	13MP rear, 5MP front	5MP rear, 2MP front
Overall score				

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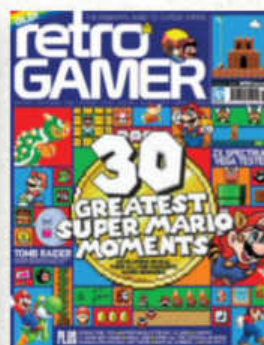
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Nexus 5X

Will the Nexus brand remain the cream of the crop for Android heading into 2016?

For many an Android user, the launch of a new Nexus device is the pinnacle of the yearly cycle of smartphones. Notorious for being high-end devices at a competitive price point, this year has seen two very distinct devices enter the fray. While Huawei's 6P is tailored to a more premium audience, the 5X developed by LG has a look and feel of a more mid-range affair.

We can't recall any previous Nexus device being a real looker and the trend continues with the 5X. The black shell is fairly dull, but while some may scoff at the plastic build, it's robust and lacks any sort of noticeable flex in the shell. Around the back is a protruding camera lens (which may cause some issues when finding a decent case), along with the new fingerprint scanner just below it. The normal selection of ports are included, as well as a reversible USB-C offering for a quicker charge. However, you'll need to buy a separate cable as you won't find one included in the box. There's no microSD slot, but there are 16 and 32GB variations available. As ever, you'll be heavily relying on cloud storage more often than not anyway.

Apart from an increase in size from 2013's 4.95-inch display on the Nexus 5 to 5.2 inches, it's by and large the same. The IPS LCD panel shows off colours really well and viewing angles are some of the best we've experienced in a while. There's also something that we really enjoy about the 5.2-inch sizing, as it's just the right size for one-handed use.

It has to be said that Android Marshmallow is a joy to use on the Nexus 5X. Moving between menus is fast and the revamped animations look great, rather than being a real nuisance. Android Pay also comes as standard, making use of the fingerprint scanner on the rear. Contactless payments are fast becoming the norm, so expect to make use of that scanner much more as time goes by.

What we were surprised by is the inclusion of 2GB RAM in the 5X. While the jury is still out on whether 4GB is really needed in a mobile device, 2GB is a little on the weak side for those wanting to undertake some more processor intensive tasks. However, those seeking a good everyday experience will find the 2GB RAM sufficient, plus the Snapdragon 808 processor isn't a massive burden on the 2,700mAh battery. Expect to get close to a day of use between charges, but as ever, watching movies, listening

One-handed use

The argument on whether five inches is too big for a smartphone will continue to go on, but in our opinion, the 5.2-inch offering here is perfect for one-handed use

Viewing angles

Huddling around the 5X with your friends to watch the latest AAA blockbuster is doable. Viewing angles on the IPS LCD display are some of the best we have ever seen

Missing metal?

Plastic is a tried and tested material for most mid-range smartphones, but it would have been nice had LG included a full metal body



to music and other such tasks will have you clambering for your charger quickly.

We've already commented on the very awkward design of the protruding rear camera lens, but otherwise, when in use, this is a solid camera offering from LG and Google. While on paper the 12.3MP sensor is smaller than many other mid-range competitors, image clarity is up there with the best of them. Low-light photography is a particular highlight here and the large sensor is able to bring in extra light to help keep images looking good in the dark. What's more, with Android's core Camera app, there's a

magnitude of shooting and recording options ready to be explored.

You'd be hard pressed not to agree that the 5X is a solid, if unspectacular entry to the Nexus lineup. It pretty much nails all of the key elements that have made the previous devices a success and refines some of the key areas that needed improving. But 2015 has seen one of the best lineups of Android devices ever and the Nexus 5X doesn't really bring anything new to the table. With prices starting at £339 (\$379), this is a real contender for your next device, but don't expect to be blown away this time around. ■



Low-light photography

The enlarged sensor is a good solution for adding extra definition to your low-light images. The Camera app also has a myriad of shooting modes

USB-C woes

Charging through the new USB-C port is quicker than traditional charging through microUSB, but the fact you need to buy a compatible cable seems a little unfair

Fingerprint scanning

Arguably the biggest addition to the Nexus 5X is the inclusion of a fingerprint scanner. You'll use it to add a layer of security to your device, as well as to confirm mobile payments

Nexus 5X

£375/\$379

» More information store.google.com
» Supplied by **Clove Technology**

Best deal



£29.50
per month
(contract)



£29
per month
(contract)



£27.50
per month
(contract)

Technical specs

» Operating system.....	Android 6.0 Marshmallow
» Processor.....	Qualcomm Snapdragon 808 1.82GHz hexa-core
» Memory.....	16/32GB storage / 2GB RAM
» Dimensions.....	147 x 72.6 x 7.9 mm
» Weight.....	136g
» Display size.....	5.2-inches
» Display resolution.....	1080 x 1920 pixels (423 ppi)
» Front camera.....	5MP
» Rear camera.....	12.3MP
» Connectivity.....	LTE Cat 6, dual-band MIMO Wi-Fi, NFC, Bluetooth 4.2
» Expansion slot.....	N/A

Battery life

A day of use is pretty standard nowadays and the 2,700mAh offering here hits that target

Good for

Buying things

Android Pay could potentially be the next big thing in paying with your mobile

Taking pictures

One of the best mid-range cameras we've tested for dealing with low-light photography

Bad for

The plastic build

The plastic build will put off those who have already had a taste of a metal body

Charging

Shipping without a USB-C cable for charging seems a little naughty of LG and Google

Verdict

It doesn't have the sparkle of previous devices, but this is another solid entry into the Nexus lineup



Nexus 6P



Nexus devices have always offered great promise, but they have ultimately been a compromise too far. Can the 6P finally deliver on all fronts?

What is a Nexus? When it was originally conceived, the idea of a Nexus device was for Google to work with manufacturers to demonstrate how to deliver the best Android experience for a particular segment, be that high-end devices, mid-range devices or a tablet. With the latest generation, Google has returned to this approach – the Nexus 5X demonstrates how to deliver a great device at a sub-flagship price and the Nexus 6P hopes to demonstrate how to build a premium Android phone. Huawei's Nexus should be the very best that Android has to offer, bar none. No pressure then.

There are a few things you need to do to make the ultimate Android phone: you need to excel on design and build, raid the parts bin for the best components on offer, provide a perfect software experience and, for extra bonus points, price it competitively.

2014's big Nexus flagship was the Nexus 6. It had a 6-inch screen, a metal frame and a plastic back; while it wasn't a bad device, it wasn't fantastic either. The enlarged Moto X design made it excessively chunky and the 6-inch screen was simply too large for most users. The good news is that Google seems to have learnt its lesson from the release of the Nexus 6, as it has scaled down the size while scaling up both the quality and design. The metal now includes the back of the device, the phone is thinner and easier to hold and the downsized 5.7 inches makes the width of the device more manageable. So far so good then.

With the Nexus 6P you won't be left wanting for raw power. The Snapdragon 810 features and, once again, it appears the heat issues have been tamed here by the manufacturer coming late to the party. The 3GB RAM keeps things running smoothly (less than the 4GB on the Samsung Galaxy Note 5, but certainly ample). There's no memory expansion, but the device is offered in 32, 64 and 128GB varieties. All the appropriate boxes are ticked on the specification sheet with the exception of the Nexus' new favourite: wireless charging. Google has decided that the increase in thickness wasn't worth the benefits. Right or wrong? You decide.

As you'd expect, Google's latest phone runs Google's most recent operating system, Android 6.0 Marshmallow. This OS feels a lot like a refinement of Lollipop, which is no bad thing as it still feels fresh and on the powerful hardware of

Amoled display

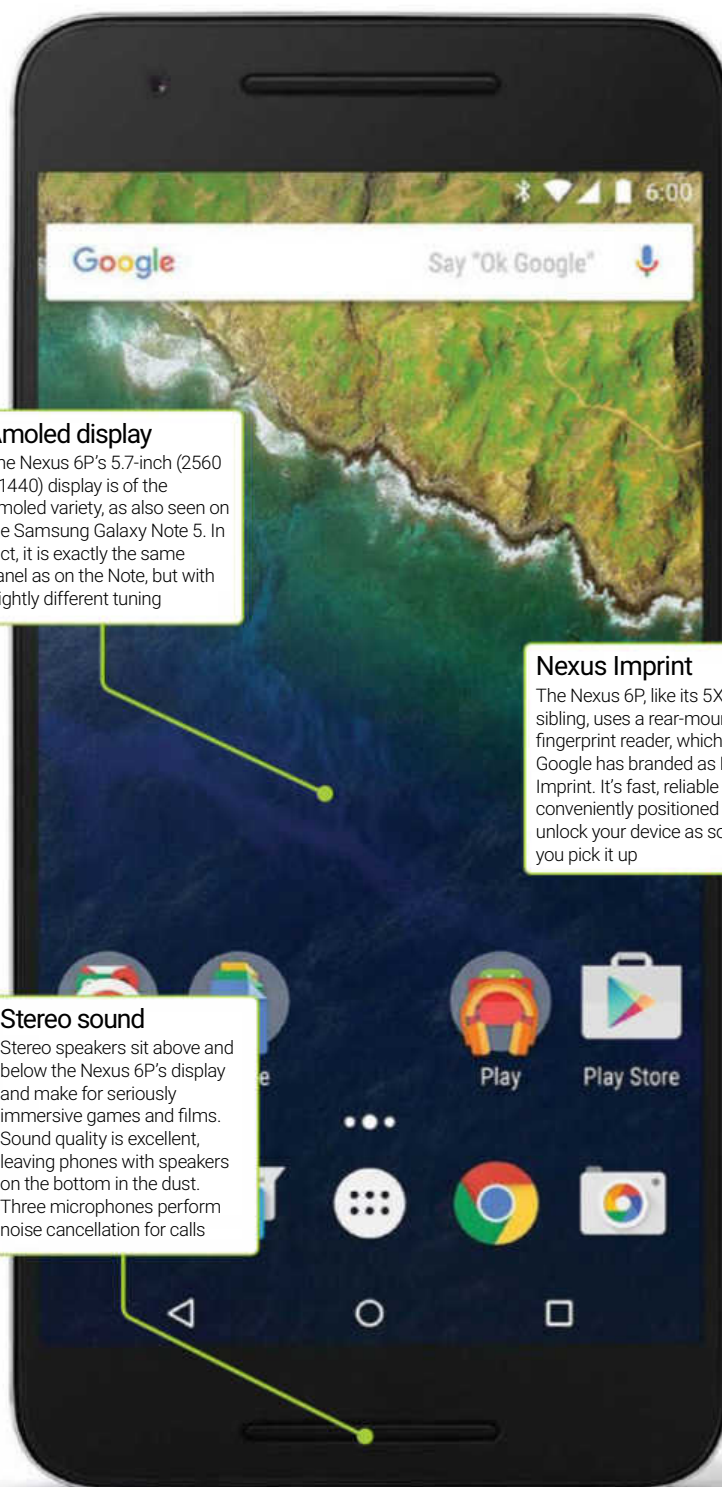
The Nexus 6P's 5.7-inch (2560 x 1440) display is of the Amoled variety, as also seen on the Samsung Galaxy Note 5. In fact, it is exactly the same panel as on the Note, but with slightly different tuning

Nexus Imprint

The Nexus 6P, like its 5X sibling, uses a rear-mounted fingerprint reader, which Google has branded as Nexus Imprint. It's fast, reliable and conveniently positioned to unlock your device as soon as you pick it up

Stereo sound

Stereo speakers sit above and below the Nexus 6P's display and make for seriously immersive games and films. Sound quality is excellent, leaving phones with speakers on the bottom in the dust. Three microphones perform noise cancellation for calls



the 6P, it flies along at a high speed. Improvements such as better permissions handling, improved battery management and in-built support for fingerprint sensors (the 6P has one on the back) just cement Android's position as a polished mobile OS.

In the UK, the Nexus 6P starts at £449, rising to £579 for the 128GB model. It only takes a quick glance at the price of an equivalent iPhone 6s Plus (that's £789 by the way) to realise that it's very good value. It's also available on contract from a number of mobile networks, should the subsidised option be your preference.

Nexus devices have always had one big compromise: the camera. In the past Google has talked it up – it has released some fantastic photo tools in Google+ and its new Photos app – but it has never delivered on the hardware. Finally that's changed. The Nexus 6P includes a 12.3MP camera with 1.55 µm pixels, f/2.0 aperture and IR Laser assisted autofocus. Those large pixels enhance performance, particularly in low light, which equates to great pictures all of the time. There is no optical image stabilisation and the Google Camera app is still just okay, but

finally the camera is no longer a reason to not buy a Nexus. Even the front camera snaps 8MP photos should you be particularly fond of taking selfies.

In the 6P, Google has finally built the best Android phone, as promised. ■



Aero-grade aluminium

The Nexus 6P uses aeronautical-grade anodised aluminium that is subtle on the graphite (black) model, but quite distinct on the aluminium (silver) or frost (white) models. The black plastic window at the top provides some contrast on the lighter coloured models

C the future

MicroUSB is going away and USB Type-C is the future. Right now it's only on a handful of devices, including both new Nexus phones, the ZUK Z1 and the OnePlus 2. It's reversible, so you'll never insert a cable upside down again!

Textures and finishes

The small touches are cleverly thought out across the Nexus 6P. The front is of course black and glossy, as is the rear camera window, but the metal itself has a matte finish and the power button is textured too

Nexus 6P

32GB £449/\$499

64GB £499/\$549

128GB £579/\$649

» More information store.google.com
» Supplied by **Carphone Warehouse**

Best deal



£34
per month
(contract)



£34.99
per month
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£35
per month
(contract)

Technical specs

» Operating system.....	Android 6.0 Marshmallow
» Processor.....	Qualcomm Snapdragon 810 2.0GHz octa-core
» Memory.....	32/64/128GB storage / 3GB RAM
» Dimensions.....	159.3 x 77.8 x 7.3 mm
» Weight.....	178g
» Display size.....	5.7-inches
» Display resolution.....	2560 x 1440 (518 ppi)
» Front camera.....	12.3MP
» Rear camera.....	8MP
» Connectivity.....	LTE Cat 6, dual-band MIMO Wi-Fi, NFC, Bluetooth 4.2
» Expansion slot.....	N/A

Battery life

The 3,450mAh battery is surprisingly large for such a thin device and gives a suitably impressive battery life

Good for

Taking pictures

The best camera is the one you have with you and finally the Nexus camera is worthy of taking it with you

Tablet replacement

If you use a tablet mostly for consuming video, then the large Nexus 6P screen will do the job

Bad for

One-handed use

While the 6P is smaller than the huge Nexus 6, one-handed use is still out of the question

MicroUSB cables

USB Type-C might be the future, but as of today it's just a bit of a nuisance. Be prepared to invest in new cables

Verdict

Finally, we have a Nexus that is truly a device without compromise – a worthy flagship for Android



HTC A9

HTC finally throws off the shackles of the M8

Back in the noughties, HTC was constantly fighting with Samsung for supremacy over the Android market. However, a series of mistakes and failed products has eaten into HTC's profits and the company has been in a nosedive ever since. Although both the South Korean company's HTC One (M8) and M9 were excellent phones, they failed to sell; the latter suffering due to a perceived lack of innovation from its previous iteration. HTC has decided to throw itself fully into the premium end of the mid-range market with the A9 at £419/\$499.99 with reasonably high-end specs.

The first thing we have to mention about the A9 is the fact that it is the first non-Nexus handset to run Android Marshmallow. Yes, HTC's non-flagship is going to beat the likes of Samsung, LG, Sony and even Motorola to the punch in getting the very latest version of Android. This could prove crucial to users who want to get the new operating system as quickly as possible without rooting their device.

One of the major criticisms of the M9 was the fact that HTC took no risks with the design. HTC has steered away from the look of the M range with the A9 by flattening the handset, making the huge camera lens smaller, shifting the camera to the very top of the handset and

Memory games

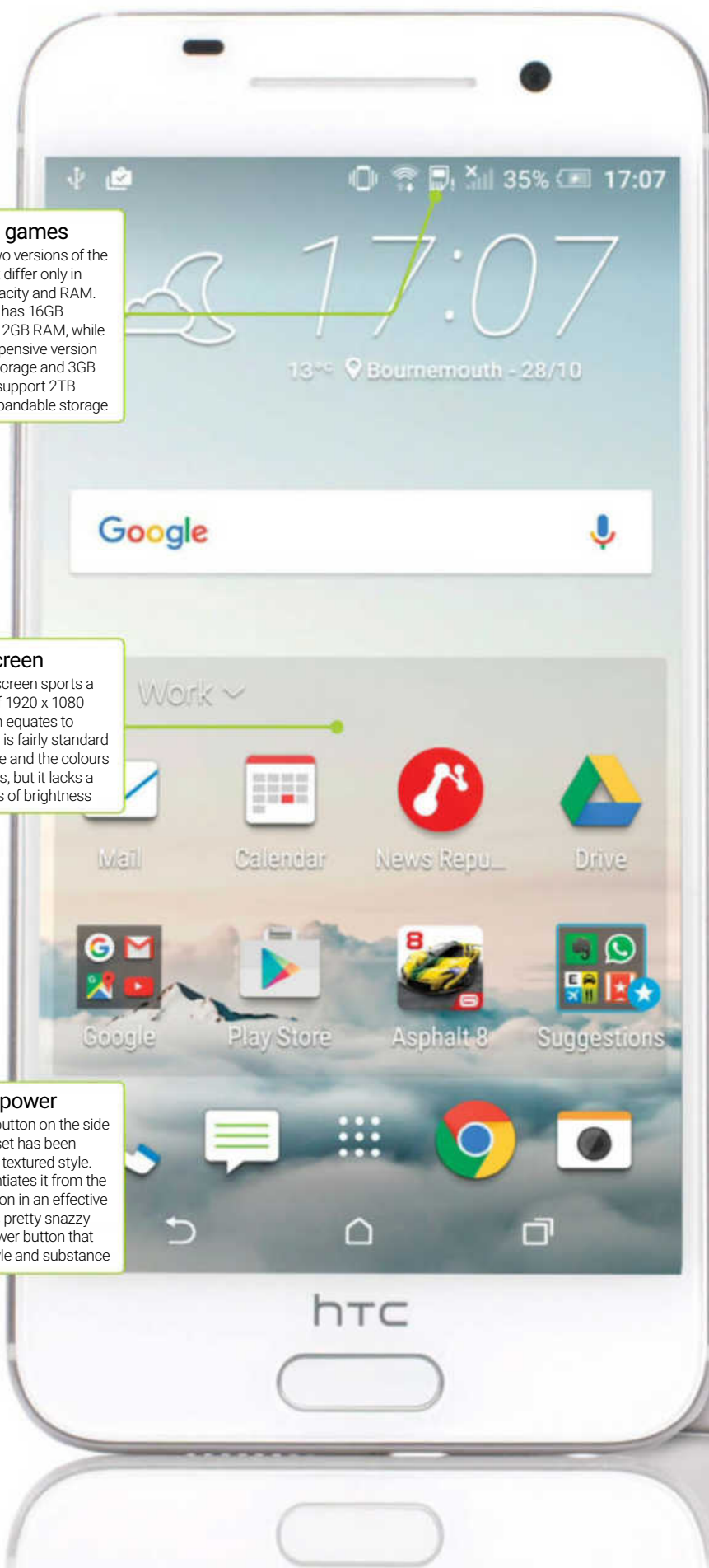
There are two versions of the HTC A9 that differ only in storage capacity and RAM. One version has 16GB storage and 2GB RAM, while the more expensive version has 32GB storage and 3GB RAM. Both support 2TB microSD expandable storage

Sharp screen

The 5-inch screen sports a resolution of 1920 x 1080 pixels, which equates to 441ppi. This is fairly standard for this range and the colours are gorgeous, but it lacks a little in terms of brightness

Feel the power

The power button on the side of the handset has been finished in a textured style. This differentiates it from the volume button in an effective way. It looks pretty snazzy too, so a power button that has both style and substance



"HTC has dragged itself kicking and screaming into the upper mid-range war"

placing a fingerprint scanner on the front. This design departure has been a success and the A9 looks like a sleek, premium device. It feels top quality too, encased in an all-metal unibody that screams class.

On the other hand, that fingerprint sensor heralds the end of one of HTC's major selling points. The dual front-facing speakers have gone and have been replaced by a single speaker on the bottom of the handset. Nevertheless, the A9 has lost none of its audio quality as BoomSound technology is still to be found inside the device with Dolby Audio surround sound and 24-bit lossless audio. The sound quality is staggering, even through earphones where you can really feel thumping bass and pure high notes. If you love listening to music through your phone, this could be the one for you.

HTC has always had a bit of a love-hate relationship with its camera technology. It tried to shift the goalposts with UltraPixel in the M8, but that really didn't take off as much as it had hoped. As with the M9, the UltraPixel camera remains, but only on the front; the A9 also sports a 13MP camera on the rear with an f/2.0 aperture. Now this is one of the most impressive camera apps we've seen. The pro settings are

easy to use and, once you've got the hang of them, they can produce superbly detailed images. When compared to the LG G3, the A9's detailing on clouds was superior and much truer. The auto settings aren't the best so you probably will find yourself playing around with the settings a little more than you'd like, but the final result can be stunning.

While the Qualcomm Snapdragon 617 is a few steps behind the 810 or Samsung's Exynos range, this is still a nippy device and you notice very little lag or waiting time. Videos and games play smoothly, even when there are other apps running in the background, so the 2GB RAM clearly isn't having to work overtime. It does heat up quite quickly, but it doesn't reach the uncomfortable levels that we found with the Sony Xperia Z5.

While the five-inch FHD screen is fantastically clear and pixel-free, it is lacking a bit of brightness. While the likes of the Galaxy S6 and G4 can almost hurt your eyes at their top setting, even at full whack the A9 can't get a terribly vibrant screen.

HTC has dragged itself kicking and screaming into the upper mid-range war, but whether it is quite worth the price tag remains to be seen. ■

Make some Sense

HTC's Sense skin is as good as ever. It is clean, light and the ability to alter your homescreen based on your location is a great feature. It is still one of the best Android skins out there

Extra stability

HTC has included OIS in its camera app so your photos will be a lot more stable and shake-free than in previous HTC models. This feature is only on the rear camera, which also has auto focus

Hyperlapse mode

Any videos you take can be sped up thanks to the A9's Hyperlapse mode. You can whizz through videos at up to 12 times the normal speed with the slider and then save it to create a high-energy video clip. This also works for downloaded videos

HTC A9

£419/\$499.99

» More information www.htc.com
» Supplied by HTC

Best deal



£32
per month
(contract)



£32.49
per month
(contract)



£32.50
per month
(contract)

Technical specs

» Operating system.....	Android 6.0 Marshmallow
» Processor.....	Qualcomm Snapdragon 617 1.5GHz octa-core
» Memory.....	16GB storage / 2GB RAM
» Dimensions.....	145.8 x 70.8 x 7.3 mm
» Weight.....	143g
» Display size.....	5-inch
» Display resolution.....	1080 x 1920 pixels (441 ppi)
» Front camera.....	4MP with UltraPixel
» Rear camera.....	13MP
» Connectivity.....	4G, Bluetooth 4.1, NFC
» Expansion slot.....	microSD up to 2TB

Battery life

The 2,150mAh battery is small and will only just last a day, but it does support Quick Charge 2.0

Good for

Build quality

This is one of the best looking and best feeling HTCs we've ever used

Android Marshmallow

Shipping with Android 6.0 is a great selling point as everything is optimised for the new OS

Bad for

Battery life

We would have liked a battery that could comfortably see out the day and then some more

Screen brightness

It really is noticeable that the screen doesn't have the razzle dazzle of its rivals

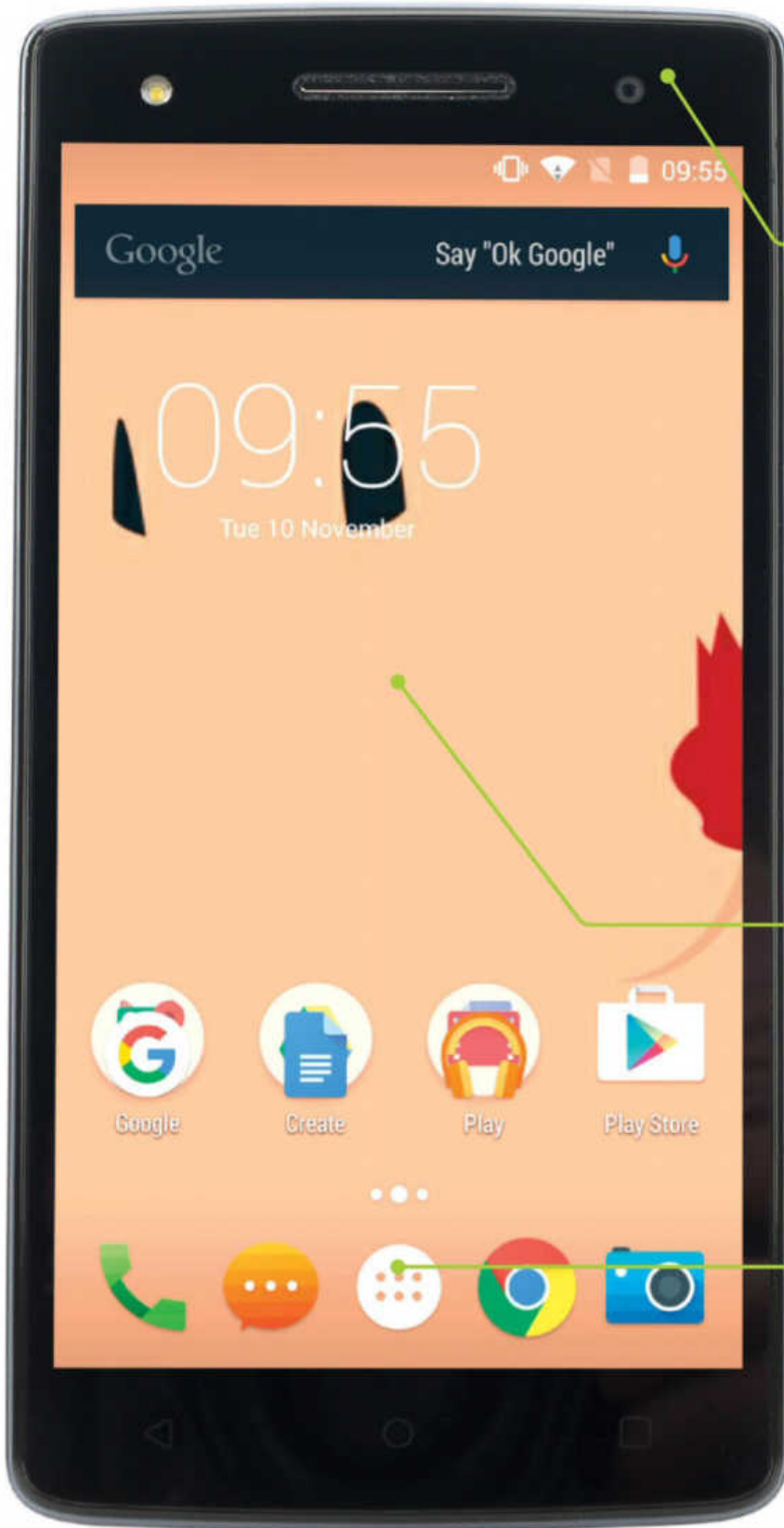
Verdict

This is a really smartly packaged phone with only a few minor flaws, including its large price



Wileyfox Storm

The mobile that hopes to take the Android world by storm



Dual SIMs

The Storm is a dual-SIM phone, so you can use it as both a work and personal handset. However, the second SIM slot doubles as an SD card slot so you have to choose between expandable storage or that second SIM card

RAM for ewe

The Wileyfox is loaded with an impressive 3GB RAM, which is pretty generous for a phone in this price bracket. It means the phone runs smoothly, even though the limited processor doesn't enable it to run incredibly fast

Full HD screen

The full HD screen measures 1920 x 1080, which works out at 400ppi. This results in a high quality screen with a gorgeous colour gamut. It isn't the brightest screen ever, but it's generally good quality

Theme your phone

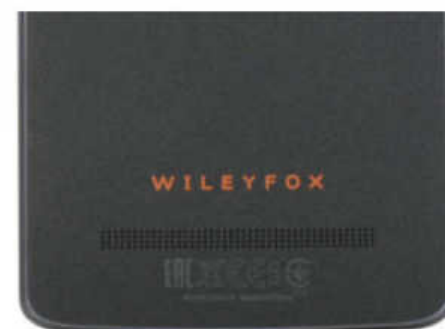
Themes are user submitted and more are getting added every day. Once you've applied a theme you can customise the font, the icons, the lockscreen controls and even the boot animation. All of this can be done without root or technical skills



Wileyfox Storm

£199

» More information Wileyfox.com
» Supplied by Wileyfox



Technical specs

» Operating system.....	Cyanogen 12.1
» Processor	Qualcomm Snapdragon 615 1.5GHz octa-core
» Memory.....	32GB storage / 3GB RAM
» Dimensions.....	155.6 x 77.3 x 9.2 mm
» Weight.....	155g
» Display size	5.5-inches
» Display resolution.....	1920 x 1080 (400 ppi)
» Front camera.....	8MP
» Rear camera.....	20MP
» Connectivity.....	Wi-Fi, Bluetooth 4
» Expansion slot.....	microSD up to 128GB

Battery life

For a sealed in battery, you would hope for more than 2,500mAh for added security

Good for

The excellent OS

Cyanogen is rightly one of the best Android forks due to added customisation and security settings

Cameras

The Sony imaging sensors are excellent and they're backed up by an innovative app

Bad for

Material problems

The phone does feel a little bit cobbled together and not sleek in the slightest

Slow processor

The Storm has good specifications apart from a lacklustre processor that denies it any real power

Verdict

This is a great start from Wileyfox and puts root-style customisation into the hands of non-modders



Sealed in battery

The 2,500 mAh battery is sealed inside an unremovable back, so unfortunately you aren't able to swap the battery out for a fresh one should you be caught short. It will generally last about a day of average use

Storage wars

Despite running a rival to stock Android as the OS, the Storm still comes with the full suite of Google apps. The preloaded apps eat up about 5GB of the 32GB storage, so you have plenty of space for your personal storage



When the Wileyfox Storm was announced, alongside its little brother Swift, the Android community was instantly intrigued. The British startup has partnered with Qualcomm and CyanogenMod, one of the world's most popular Android forks, to create an Android phone that has that much needed unique element.

Cyanogen's big selling points are its customisation and security. To get the Storm's range of themes and security features you'd usually have to root your phone and flash a custom ROM yourself or download a ton of apps. However, by making Cyanogen the stock OS, Wileyfox has brought that level of customisation to the masses and given its users the chance to create a truly original phone.

Cyanogen has an enormous, ever-growing stock of wallpapers and themes for you to choose from. Not only that, but you can mix and match using a particular font with a different wallpaper and app icons. Customisation on this scale is out of the reach of most users so Wileyfox really has carved a niche for people wanting a personal experience.

From a security point of view, Cyanogen again comes up trumps. It has Privacy Guard pre-installed, where it denies certain apps access to sensitive data on your phone, and Caller ID, so you know who is calling you even if you haven't got their number saved in your phone.

The speed with which Cyanogen is able to roll out updates, bug fixes and general improvements is impressive. While Android users have to wait months for incremental changes to their software, Cyanogen's open-source nature means that updates can occur on a weekly basis, so you will always have the most up to date phone possible.

The design of the Storm isn't pulling up any trees. From the front it is a pretty standard 5.5-inch smartphone, albeit with extremely thin

side bezels that make single-handed use very achievable. The rear of the phone is made of a strange textured plastic that has an almost cardboard feel to it. This lets the phone down considerably, but at least they have continued to try something a little different. Nevertheless, the orange and black theme is pretty striking and it's definitely the kind of phone that will get a lot of people talking.

Considering Wileyfox and Qualcomm have partnered together to create this new phone, it does come as something of a surprise that they're only using the Snapdragon 615, a 1.5GHz octa-core processor. Admittedly you wouldn't expect a normal phone that costs under £200 to house the very latest processor, but as they have partnered, it's a bit of a let down that they haven't at least gone for the 808. This is reflected in the Storm's benchmarking scores that rank way below its big rivals. It doesn't feel particularly slow and games and videos aren't hampered but you also don't get the same kind of zip you get from the ZTE Blade S6 or the Moto G. It also gets very hot extremely quickly, even with only medium use.

The camera app is really enjoyable to use. Both the 20MP rear-facing and 8MP front-facing cameras use Sony imaging sensors and they are extremely quick to focus. A simple swipe on the display can change the shooting mode, which proves to be a very useful feature and HDR brightens up images nearly as well as using the flash. The app is refreshingly different from the stock-Android camera app and all the changes have been positive.

For one of its first-time phones, Wileyfox has done a pretty good job. There are things to work on as there always are, such as material quality and power, but on the whole this is certainly a mobile that can mix it with the big hitters in this increasingly crowded market. ■

ZUK Z1

Lenovo-backed ZUK attempt to emulate the success of OnePlus with a low-cost, high-value, Cyanogen OS device

It seems as though 'low cost, high value' is the new battleground. This unconventional approach to the market was pioneered by OnePlus with the One, a phone that packed great specifications at a knockdown price. It was inevitable that others would try and emulate this success and now they are: the ZUK Z1 ticks many of the same boxes and even includes Cyanogen OS, just like the OnePlus One.

ZUK itself might be a start-up releasing its first device, but behind them it has the might of Lenovo (also owners of Motorola) and this experience shows in the Z1, both from the materials and construction perspective and on the carefully chosen spec sheet. Although the front and the back of the device are unquestionably plastic (the back can't be removed), the device has an aircraft-grade aluminium frame with bevelled edges, which lends a degree of quality to an otherwise fairly bland design. Branding on the device is minimal with just a single ZUK logo on the back.

The Z1 uses a 2.5GHz Qualcomm Snapdragon 801 processor with 3GB RAM and 64GB storage. Although this is a 32-bit processor, it's still one of the finest of recent years and is superior in performance to the MediaTek or Snapdragon 615 processors typically found in lower-cost devices. Given the myriad of issues with the Snapdragon 810, it could be argued that using the fastest version of the 801 is an

inspired choice and when you use the device, you'll be further convinced that this is the case. No doubt helped by the lightweight Cyanogen OS, the Z1 positively flies. It really does feel faster than some of the latest flagships. Use of the Cyanogen OS provides assurance that updates will be fast and the device has an unlocked bootloader that is likely to be very popular among custom ROM creators.

The ZUK has a 5.5-inch full HD IPS display, which seems to be the most popular screen

size for devices at the moment. The screen also has a fingerprint-proof coating (not made of Gorilla Glass – this tempered glass-screen protector is an optional extra), gapless construction and is extremely bright. What's more, the touch sensitivity is excellent.

One area that is often skimmed on in cheaper devices is the camera. The Z1 has a 13MP Sony Exmor RS sensor with OIS. Yes, OIS on a non-flagship device! The Cyanogen camera app itself is rather basic, which detracts from the

USB Type-C

The ZUK Z1 includes the new USB Type-C port. This is great because you'll no longer find yourself trying to plug a cable in upside down, but also slightly annoying because you'll need to buy an adapter (not included) to charge the device

Ample storage

The ZUK Z1 offers ample storage out of the box with 64GB being the only model available. This is not expandable via microSD, but even for the most demanding users this shouldn't be a problem

Speaker quality

The speaker is on the bottom of the device alongside the USB port and the microphone. While it's relatively loud, the sound quality isn't great with no real bass. A graphic equaliser application is included with Cyanogen OS



overall camera experience, but particularly in good light the camera is very good.

Unfortunately, low-light performance is poorer than we would expect from an OIS device. Furthermore, the Lollipop Camera2 API isn't supported and this then limits the ability to use third-party camera apps such as Manual Camera.

An especially popular feature to include on devices at the moment is a fingerprint sensor. The ZUK Z1 does deliver this sensor built into the home button. Waking the device requires a press on the button after which the fingerprint is recognised. The recognition is extremely fast and very accurate – we compared the performance to a Galaxy S6 and the ZUK was appreciably quicker. Very impressive.

Connectivity on the Z1 is extensive. As well as offering dual nano-SIM support (LTE on the main SIM, 2G on the second – note that band 20 LTE isn't supported, which O2 and Vodafone use in the UK), the phone includes Bluetooth 4.1 and dual band 802.11ac Wi-Fi. GPS support includes Glonass for additional accuracy.

It's difficult to pinpoint things that could be better executed on the Z1 as it's so very well thought out. Aside from better speakers (the single base-mounted speaker is weak), a more premium material on the back and perhaps a slightly more unique design, we think ZUK has got it spot on, even without taking the price point into account. Yet another company the established players have to worry about then. ■

Black or white?

The ZUK Z1 is available in two colours: black with a grey back or white with a white back. The grey model has a slightly less shiny finish than the white and so is less susceptible to fingerprint smudges

The monster battery

It's certainly not the only trick it has up its sleeve, but the Z1's 4,100mAh battery is a monster. It makes the device heavy compared to its competitors at 175g, but the obvious benefit is unbeatable battery life

No NFC

As is common with many devices that originate from China, the ZUK Z1 doesn't include NFC functionality. This is not a huge issue as it stands today, but ultimately when Android Pay launches in the UK, NFC will quickly become the next must-have feature

ZUK Z1

£206/\$310

» More information zuk-store.com
» Supplied by ZUK Store Europe



Technical specs

» Operating system.....	Cyanogen OS (Android 5.1.1)
» Processor.....	Qualcomm Snapdragon 801 2.5GHz quad-core
» Memory.....	64GB storage / 3GB RAM
» Dimensions.....	155.7 x 77.3 x 8.9 mm
» Weight.....	175g
» Display size.....	5.5-inches
» Display resolution.....	1920 x 1080 pixels (401 ppi)
» Front camera.....	8MP
» Rear camera.....	13MP
» Connectivity.....	4G LTE, Wi-Fi, Bluetooth 4.1
» Expansion slot.....	N/A

Battery life

The combination of a near-stock Android OS and a massive 4,100mAh battery means the ZUK Z1 will outlast anything else on sale today

Good for

Power users

If you like power, the Z1 is ideal. A powerful yet frugal processor and monster battery will keep you going all day

High-resolution selfies

The front-facing camera is 8MP in size and produces impressive quality selfies

Bad for

Being big and shiny

On the white model, the overall size and shiny plastic back does not make it feel like a premium product

Low-light shooting

While the camera is definitely superior to many budget devices outdoors, it can struggle in low light

Verdict

The ZUK Z1 is an all-round great phone with its Cyanogen OS and huge battery really topping off an excellent value package



BlackBerry Priv

BlackBerry finally makes its first Android phone, but the keyboard it's so famous for remains intact

Yes, BlackBerry has made an Android phone. The Finnish manufacturer used to jostle with the likes of Apple, Samsung and Nokia at the very top of the mobile phone tree, but it utterly failed to keep pace with the smartphone revolution, lurching from crisis to crisis refusing to shift from the boxy, physical keyboard designs and its own operating system.

However, after being approached by Android, BlackBerry decided to have a go at making its very own phone that made the most of both the Android ecosystem and the Google Play store while retaining BlackBerry's security features and of course that physical keyboard. The result is the BlackBerry Priv.

BlackBerry has gone for a 5.4-inch, slightly curved, 2560 x 1440 resolution touchscreen that is a real beauty. The colours are fantastic, it is incredibly sharp and the subtlety of the curves means that you don't lose anything off the side of the screen. It is responsive and altogether one of the best we've seen.

The rear of the device is encased in a tensile weave with a rubbery feel. Usually a phone at the price of the Priv, £559, would sport a metal and glass finish, but there is method to BlackBerry's madness. The weave provides a tonne of grip, enabling the user to hold it confidently and, more importantly, slide out the physical keyboard with only one hand. Although it doesn't feel premium, the unique design and elegantly curved screen gives the Priv a distinctive and attractive look.

The keyboard was clearly non-negotiable for BlackBerry. It is one of its unique selling points and is synonymous with the brand. However, it has dragged it into the 21st century. It is fully capacitive, meaning that running your finger vertically along the keyboard scrolls up and down a webpage. It is also extremely sensitive, but with a bit of practise you should be able to comfortably navigate the screen with your keyboard. You can also set up hotkeys and assign apps to certain letters so you can, for example, load up Facebook just by tapping the F key or even use a button to act as a camera shutter. This aspect contains a lot of subtle functions that really make this a keyboard for the modern smartphone user.

The cameras are a mixed bag. The rear-facing camera is excellent, taking gorgeously sharp 18MP images with OIS and dual-flash for enhanced low-light photography. On the other

Memory bank

The Priv ships with 32GB storage, but also supports 2TB of microSD card storage. It is swappable, so you can take it out and pop it in without dismantling your phone

All-new customisable quick launch

Tapping and holding the Home button on the Priv not only brings up the standard Google search option, but also two more quick launch icons that you can customise to your own preference. It can be anything from speed dial to an app

4K recording

Even though the Priv only has a 2K resolution screen, it is capable of shooting video in 4K. So you can get amazing video quality, but you will have to upload it somewhere else to see the full picture



hand, the front-facing camera is a thorough disappointment. It has a paltry 2MP and despite going in the same direction as HTC by using large pixels, it still produces grainy pictures with some peculiar colouring. The disparity between the two cameras is quite surprising and selfie fans will be left extremely frustrated with the quality of the images. However, if you are into photography then with the rear-facing camera you are in for a treat as this challenges the Sony Xperia Z5 in terms of sharpness.

BlackBerry has always taken security extremely seriously and has ensured this isn't compromised in the Priv. One of its headline features is DTEK, an app that keeps tabs on any potential security flaws or privacy breaches. DTEK looks at all aspects of your phone, such as your lockscreen, encryption and operating

system, and decides if they are a security risk or not, prompting you to alter your settings to make it as secure as possible. It also tells you when and where certain apps have accessed your details so you can decide if, for example, your flashlight really needs to know your location.

There are plenty of excellent aspects of the Priv. It is striking, unique and has that multifunctional keyboard that BlackBerry fans loved. Whether this phone is the one to turn BlackBerry's fortunes around will be interesting to see in the coming months. ■

BlackBerry Priv

£559/\$699

» More information BlackBerry.com
» Supplied by **BlackBerry**



Technical specs

» Operating system.....	Android 5.1 Lollipop
» Processor.....	Qualcomm Snapdragon 808 1.8GHz hexa-core
» Memory.....	32GB storage / 3GB RAM
» Dimensions.....	147 x 77.2 x 9.4 mm
» Weight.....	192g
» Display size.....	5.4-inches
» Display resolution.....	1440 x 2560 pixels (540 ppi)
» Front camera.....	2MP
» Rear camera.....	18MP
» Connectivity.....	Wi-Fi, Bluetooth 4.1, NFC
» Expansion slot.....	microSD up to 200 GB

Battery life

The Priv's 3,410mAh battery lasts just under a day even with reasonably high usage

Good for

Design quality

In a world of copycat phones, the Priv really stands out as a different and well-designed handset

That keyboard

It is BlackBerry's signature and this new multipurpose keyboard is a triumph

Bad for

The front-facing camera

It truly is a terrible low-res camera on the front that shoots grainy, dark images

Weight

For a 5.4-inch phone it is heavy at 192g. The backing and keyboard make it noticeably weighty

Verdict

BlackBerry has kept true to its values and added great Android functions. Definitely worth considering



Raised screen

The rim around the edge of the screen is a tiny bit higher than the screen itself to protect it from being dropped on a floor. It's barely noticeable as it's only a millimetre higher and performs an essential function

On the edge

As with the Samsung Galaxy S6 edge and Note edge, BlackBerry utilises the curved edge of the screen as a quick launch for certain apps and also acts as a quick view for messages and emails

Dual-action keyboard

Each of the 26 letter keys on the keyboard can be customised twice, once with a short press, once with a long press so there is the ability for 52 shortcuts to be set up



Manfrotto PIXI Smart

Robust tripod to help you take better pictures

As smartphone cameras become better and better, virtually everyone thinks they are a bit of a photographer. The cameras might well match some low-end DSLR cameras, but that doesn't mean everyone takes great photos – far from it. As with all point-and-shoot cameras, stability is always a major concern. Sometimes digital software can't do anything to save your photo if you can't keep your hand still. That's where Manfrotto's PIXI Smart tripod comes in, providing a stable base to take great pictures and also act as a comfortable ergonomic grip to capture videos, selfies and stunning panoramas. Setting it up is really simple and thanks to the universal clamp with multiple quarter-inch attachments, it works with the vast majority of Android smartphones. The build quality is really solid so whether you're taking it out on location shoots or popping it in your bag to take down to the beach, it's robust enough to withstand whatever you throw at it and this is despite tipping the scales at just 220g. It looks nice enough with a professional black finish and silver chrome fixings that look good inside too. It might be a little niche, but if you're a keen amateur photographer, we'd happily recommend Manfrotto's PIXI Smart tripod.

» Price £34.95/\$TBA

» More information manfrotto.co.uk



Universal

It doesn't matter what type of smartphone you own, because the PIXI Smart is compatible with virtually any device, even huge phablets

Adjustable

The PIXI Smart is fully adjustable, so your angle of shot doesn't have to be the standard fare. The tripod really helps to expand your smartphone camera abilities quickly

Robust design

Given its affordable price tag we were mightily impressed by the PIXI Smart's build quality. The material is robust enough to chuck in your bag and withstand any shoot location



The fixings ensure your camera is safe



Manfrotto continue to make great accessories



Ruark Audio R4 MK3

Stunning all-in-one speaker system worthy of premium price

Ruark Audio has long been a company with a reputation for high-quality audio engineering and that isn't going to change any time soon thanks to its new R4 MK3 integrated music system. As soon as you take it out of its box, it's a product that oozes class and this is just as well given the pretty hefty price tag. Obviously when you're parting with that kind of cash you expect a music system to be feature packed. Ruark has thrown the proverbial kitchen sink at the new R4 speaker and kitted it out with some cutting-edge technology that future proofs it for years to come. It has everything you could possibly need: there's Bluetooth, DAB+ radio, MP3 and USB support

and even an integrated CD player. The radio station, track and artist information is displayed on the R4's LCD front panel and there's a redesigned remote in the box too that feels great to hold, while the RotoDial controller works perfectly. The high-quality design is thankfully backed up by a mightily impressive sound output. Whatever your taste in music and whatever scenario you're in, you're sure to love listening to the third-generation R4. It's powerful or bass-y enough to power the biggest of parties and classy enough to enjoy the intricacies of much slower tracks. Absolutely superb!



» Price £649/\$799.99
» More information ruarkaudio.com

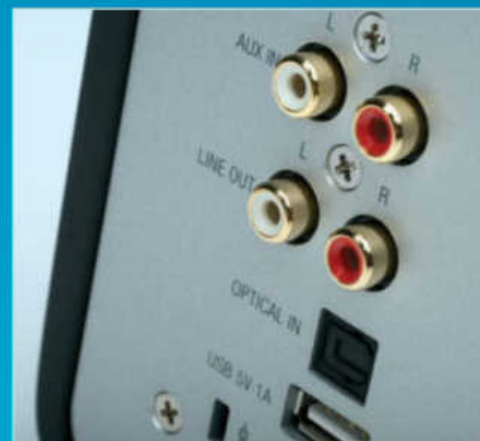


All round sound

No matter what style of music you're listening too, Ruark's R4 MK3 speaker will cater for your needs. It's loud enough for large gatherings and classy enough to handle beautiful acoustic recordings. A must buy

Playback control

The RotoDial on the top of the speaker is built with precision in mind and gives off a reassuring click when you press. There's a remote that ships in the box, too, so you can control your music from afar with ease



The sheer amount of available connections is appealing



The build quality is second to none, even the buttons



Khan Academy

The free online learning resource goes mobile

Mighty oaks from little acorns grow, so the saying goes and they often expand at an astonishing rate in the world of technology. Now a huge online learning resource with thousands of global volunteers – possibly the most popular educational site in the world – has gone mobile. The Khan Academy's origins stem from when founder, Salman Khan, offered to help his young niece with her maths homework. This soon snowballed into creating YouTube videos for her friends and the rest is history. The Khan Academy website (www.khanacademy.org) is now home to over ten thousand educational videos and text tutorials on subjects ranging from maths to medieval art. What is more, as all the content is completely free it's little wonder that the Khan Academy website is so

Just swipe the row under each heading to see relevant subjects and topics

popular and visited by around ten million users every month.

Following the release of an official iPad release at the start of 2015, the Khan Academy has finally arrived on Android. While you don't have to sign in (via Facebook, Google or an existing account) to browse the app's large library of videos, this does enable you to track your progress and accrue more energy points to earn new achievement badges and unlock avatars.

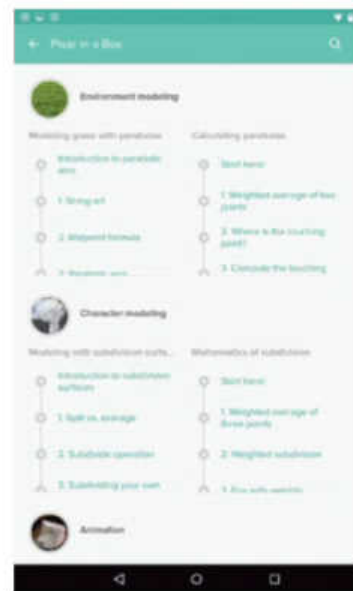
The main menu is very simple and easy to navigate with each main discipline offering a row of subjects to swipe left or right between. It's fun to browse, but to make it even easier to find exactly what you're after, there's also a search option at the top along with some featured topics to pique your interest.

Tapping a subject, such as physics, brings up a new screen showing relevant topics and their

modules or individual tutorials; this is mostly videos along with some text resources. Videos can be viewed in portrait or landscape mode with an interactive transcript below. Just tap on a line to skip to that point in the



By default, videos feature an interactive transcript – tap it to skip to that point



Subjects are organised into topics, modules, steps videos or text articles

video. While this may prove very useful, there's also the option of full-screen video. A typical video involves images with text notes and annotations being handwritten by the narrator, who is never shown. Crucially, there's an option (tap the + sign) to download videos for offline viewing when you don't have an internet connection. One thing missing here is the ability to alter the playback speed as can be done on the website, but neither is there an option for subtitles in a different language. Another thing missing is the ability to view users' questions and answers, or even ask your own. So it's a bit limited compared to the great website experience.

Undoubtedly the biggest omission is the current lack of any interactive exercises in the app. While this is perhaps understandable in the case of Android phones, it would have been a nice option for the tablet version, particularly given that the iPad app offers this functionality.

Still, as a companion app to the website, it's still well worthwhile, enabling students to learn while on the move – particularly with the offline video viewing option.

2 hour wonder

Want your money back? You've got 120 mins to decide!

- 0-40 minutes**
A huge library of content spanning many subjects
- 40-80 minutes**
It's great to download videos for offline viewing
- 80-120 minutes**
Unlike the website, there are no interactive exercises

keep refund

» specification

Price Free

Designed for: Phone and tablet
Requires Android: 4.1 and up

» verdict

Performance

Design

Value

While a more limited experience than the website, it's a great learning resource

» like this? **UDEMY ONLINE COURSES** » A wider range of subjects with over 32,000 courses, though most of these cost money.

Adidas Snapshot

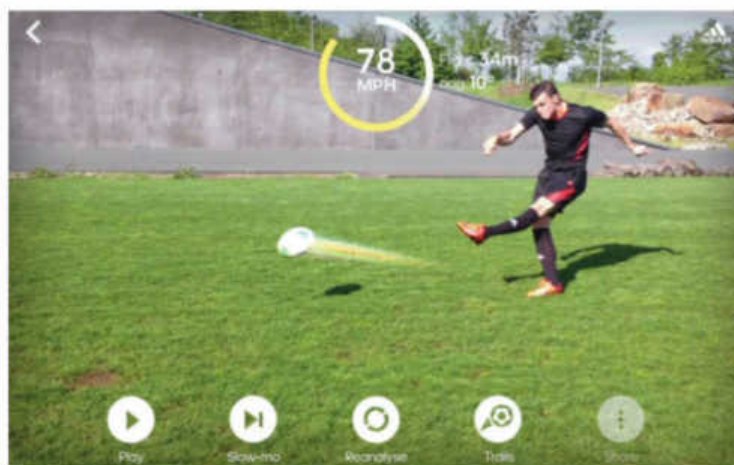
Measure your kicks



Adidas' previous app for analysing football kicks, Smart Ball, only worked with a special and

expensive miCoach ball. So it's nice to see something similar that anyone can use with a standard football – just select between size three, four and five from the settings. As demonstrated in a video of Gareth Bale, Snapshot can measure the speed, angle and distance of a free kick. Unlike Smart Ball, there's no facility for measuring spin, which is perfectly understandable given that there are no sensors in the ball.

Indeed, it's a remarkable programming feat to be able to make such a complex analysis of movement from a video, although this does mean it's a little finicky with the initial setup of the shot. After choosing a left or right-footed kicker, you need to position the device's camera side-on to them and



If only we could kick a ball like Gareth, we'd be millionaires!

then frame the ball precisely within a small circle – you'll need to keep the camera still while filming. Once ready, tap the screen to start shooting video then again to stop once the ball has been kicked away. From the resulting video, you're asked to confirm the ball's starting

point then tap it again mid-flight. The app then does its analysis, which only takes a few seconds, before playing the video with all the statistics and even a trail effect for the ball (you can choose from several types). As well as slow-motion playback, you can pause the action

and then tap to advance frame by frame. Quite cool.

While we can't vouch for its accuracy, the figures did look about right – none of us are Gareth Bale after all! On one occasion, its analysis failed, although that could have been due to inaccurate ball framing. Potentially, the app could be used to improve someone's free-kick taking skills. Either way, it's a lot of fun to play with.

» specification

Price Free

Designed for: Phone and tablet

Requires Android: 4.1 and up

» verdict

It really does work and you can share the resulting videos with your friends



» like this? try this!



BallTune Film a friend kicking a ball and BallTune will tell you whether your ball is correctly inflated.

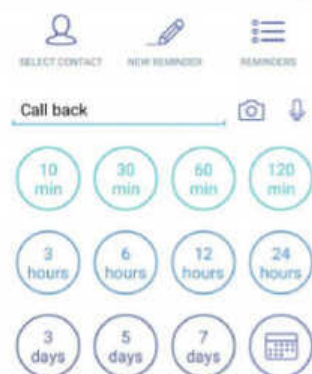
ClickMe – Reminder

The quickest way to set reminders for yourself



With our hectic lives nowadays, it's no wonder there are so many apps available for setting reminders to perform various tasks, but nothing makes it quite so quick and easy as ClickMe. With just two or

three taps, you can set a new reminder in seconds. First, you need to select the



content type: a contact to call or text, photo or audio note. Add an optional text title then tap one of the time frame circles (from ten minutes to seven days, or select a calendar date) and it's instantly added to your reminders list. Naturally, you'll be notified about it when the set time comes around. One handy bonus is the way ClickMe pops up after a phone call or when you take a screenshot (of an important email, for instance) to ask if you want to set a reminder.

» **Price Free**

» **Designed for** Phone

» **Requires Android** 4.1 and up



Just tap one of the time options or long-press it for your own customisation

» **best alternative**

REMINDE ME » A simple app that reminds you to wake up, send a text, email, or call a contact.

TapTag

Leave photo postcards for others to see



This social app lets you create and share postcards of the places

you visit and leave them for others to find through their phone's camera. It's a cool concept, but the app (just out of beta testing) still has a few teething problems and we experienced some issues including crashes. While you can follow friends and see their location on a map, it



doesn't show their geotagged photos. For that you need the in-app camera view with photos taken by others near your location, indicated by floating bubbles.

» **Price Free**

» **Designed for** Phone and tablet

» **Requires Android** 4.0 and up



Meter

Experimental live-data wallpaper for your phone



This experimental app from Google Creative Lab offers a data-driven live

wallpaper that reacts to up to three aspects of your device: wireless signal strength, battery and notifications. Each time you unlock your phone it cycles to the next visualisation type, but it's a shame you can't actually switch between them manually. The visualisations



are very simplistic in design yet they can be manipulated by tilting the device. Meter isn't particularly useful and it lacks custom options.

» **Price Free**

» **Designed for** Phone and tablet

» **Requires Android** 4.3 and up



Daemon Sync



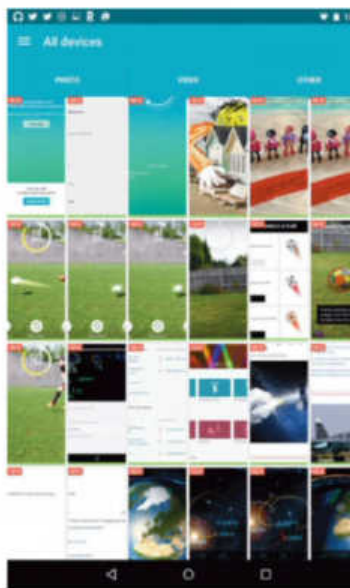
Use your own private cloud for your home



Backing up files and data to cloud services is fine, but users concerned

about privacy and security might prefer to keep everything in-house. In this case, Daemon Sync is the ideal tool for the job with its ability to sync files between devices and a home server that's running on a computer on the same Wi-Fi network. This means that no data need ever be sent over the internet.

Upon launching the app, it'll start searching for servers on your network, so you'll need to install the Daemon Sync software on your computer first. Once that's done and the app has located the server (or enter a manual IP address), it'll automatically start syncing files to it at a chosen regular interval. There are toggle options to sync new photos, videos and screenshots, plus the ability to sync custom folders. Tapping the Browse Server button enables you to see everything synced from all linked devices (including iOS ones).



Browse the files on the server synced from any linked device

- » Price Free
- » Designed for Phone
- » Requires Android 4.1 and up



Cosmic-Watch

A digital astronomical clock



Bringing the age-old concept of the astronomical clock into the digital era, the Swiss-made Cosmic-Watch is an interesting prospect, combining timekeeping with astronomy and astrology. As well as standard world clock functions, it features a detailed model of the solar system along with major constellations of stars so that you can view their positions in relation to Earth at any given time, past or future.

Upon launch, you're presented with an interactive globe, à la Google Earth style, that can be



The cosmic ballet goes on – see the solar system in action

spun and zoomed in to take a closer look at a particular region. While you can't zoom right in to see towns and roads, you can select a location to show its local time and add it to a favourites list. Tapping the three-dots icon brings up extra options including



See the constellations above a location at any given time

Time Control, which can be used to rewind or fast-forward time – tap it repeatedly to make the globe spin fast like a basketball!

Other view modes include Astro that shows the astrological positions of planets, you can set the time to your birth date for an instant star chart and there's a Stars mode that shows constellations in a celestial sphere around the Earth. While the latter offers a good overview of their positions and how they shift during the hours of the night, there's no way of viewing the heavens from a point on the Earth. So the app isn't very useful for precise location of celestial objects in the night sky, despite an option to show the equatorial coordinates.

Hidden away in the settings is a wide range of extra options, most notable of which is an orrery-like solar system mode. Use the Time Control to make the planets orbit at an increased speed, which is complete with trails and more detailed information on any solar eclipses detected. Other options include a compass mode along with various overlaid guides, Earth and sky views – the long exposure one of these looks particularly cool.

Inkboard

Be quick on the draw



Billed as the simplest way to draw on photos, Inkboard is far from being a sophisticated art app. Even so, it

offers a decent range of drawing tools – easily accessed by swiping along the bottom – including crayons, pencils, felt tips, pens, highlighters and markers. Nevertheless, it would have been nice to have more colour choice. Before you get scribbling you can choose from a blank canvas, an existing photo or a newly taken one. The undo or redo arrows often come in handy along with the two erasers,

one of which also rubs out the photo background that you have chosen to work on. Your creation can then be shared or saved to Photos.

The app also comes with its own keyboard that lets you doodle away on a small canvas while writing an email for instance. The only slight annoyance is that when using the latter, the image is sent as a link rather than a picture file.

- » Price Free
- » Designed for Phone and tablet
- » Requires Android 4.0 and up



Inkboard is great for drawing on photos to create fun effects

» like this? try this!



» OVER » Add text to your photos, using various fonts and art elements, for postcard-style images.



quickhits

5 top apps for... Astronomy



Star Walk 2 £2.02/\$2.59 + IAPs

One of the best-looking astronomy apps we have ever seen, it offers a truly heavenly view of the night sky. It's crammed with content too (some available via IAP), including dissections of planets.



Solar Walk Free – Planets Free + IAPs

From the makers of Star Walk 2, this one lets you explore a 3D model of the solar system that's packed with detail and information. There's even a stereoscopic 3D display mode!



SkEye Free

Aimed at advanced astronomers, it can be used as a telescope finder-scope or PushTo guide to help you locate celestial objects – simply strap the device to the body of your telescope.



Star Chart Free + IAPs

A good free option, it offers similar key features to those in Star Walk 2, including a virtual night sky to help you find the stars and planets above. IAP upgrade content includes meteor showers and comets.



NASA App Free

NASA's official app offers an amazing image gallery including lots of planetary pictures. There's also a live stream from the High Definition Earth Viewing (HDEV) experiment on the ISS.



» specification

Price **£3.35/\$4.25**

Designed for Phone and tablet
Requires Android 4.0.3 and up

» verdict

Performance

Design

Value

The app looks great and is fun to play with, but overall it offers limited usefulness



2 hour wonder

Want your money back?
You've got 2 hours to decide!

» 0-40 minutes For an educational app, it features impressive visuals

» 40-80 minutes You can't see the sky from an Earth-based viewpoint

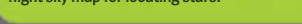
» 80-120 minutes It looks great, but isn't all that much use for astronomy

keep **refund**

Set the time to a birth date to see an instant astrological chart

» like this? try this!

Stellarium This fully featured astronomy app provides an accurate night sky map for locating stars.



Adobe Illustrator Draw

A vector-graphics sketchpad



This mobile companion app to the desktop Adobe Illustrator CC software is a

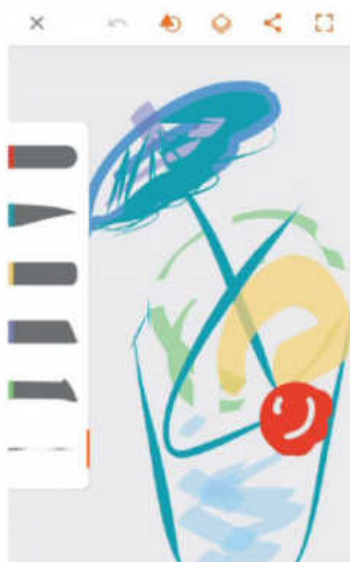
far simpler affair with no options to edit vector paths and the like. For that, there's an option to send your drawings directly to Illustrator CC. Still, the phone app – oddly not available on tablets – is a handy mobile sketchpad. One standout feature is the ability to use up to ten layers, enabling you to create complex overlaid images and use interesting photo backdrops.

There are five vector brushes and an eraser, each with options for size, opacity and colour, chosen from a full palette. Just draw your strokes and use undo if needed. You can also add any vector shapes from your Creative Cloud Library or those that have been created using Adobe Capture CC. Disappointingly, this version of Illustrator Draw currently lacks the iPad app's Touch Slide feature.

» Price Free
» Designed for Phone
» Requires Android 4.3 and up



» like this? try this! **ADOBE CAPTURE CC** Turn photos and drawings into vector graphics to use in Illustrator Draw or CC.



Create layered-vector drawings that you can edit in Illustrator CC

head to head

Which app is best for recording your greatest gaming moments?

KAMCORD VS SCREEN RECORDER

Mobile gaming is now an enormous industry with some games as elaborate and involving as console titles.

Watching others game is huge as well so we've pitted two screen-recording apps against each other to see which is best.

» specification

Price **Free**

Designed for: Phone and tablet

Requires Android: 4.1 and up



» specification

Price **Free**

Designed for: Phone and tablet

Requires Android: Varies with device

Kamcord – Live Mobile Game Vids

Screen Recorder



Creating an account takes no longer than inputting a username, email and password. You are near enough straight into the app and ready to record.

SET UP

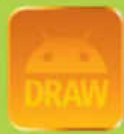
There is absolutely no set-up required for Screen Recorder. Just download the app, load it up and you are ready to begin recording your new videos.



Kamcord is designed like the Periscope app, throwing you straight into trending videos. It can be quite overwhelming and busy, but it's easy to navigate your way around.

APP DESIGN

The design of the Screen Recorder app is really open and clean, if a little boring and bland at times. We would have appreciated more design flair.



Tapping on the games controller icon at the top of the app brings up the option to record your game. However, it will only record games so it's fairly limited.

RECORDING

A simple tap on the video camera icon begins a recording, so it's really easy to get started. It does slightly cheekily advertise itself at the start of each video.



You can live stream your gaming so sharing is easy. However, there's also a button you can press after your recording has finished to then share your game.

SHARE RECORDINGS

After finishing a recording the familiar Share icon pops up so you can show your video to anyone quite easily, but there are no special sharing features here.



Watching other recordings as they happen is fun and you can comment, follow and send hearts to the people you follow, making it extremely interactive.

EXTRAS

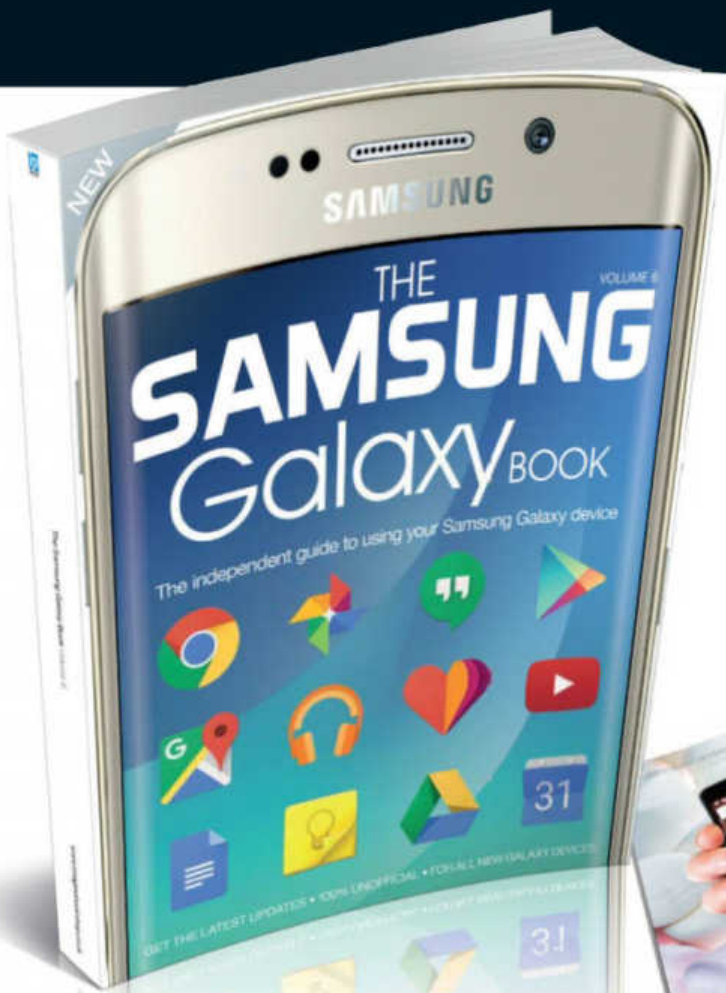
You can create GIFs and edit video, which is cool, but the process still needs a lot more work as you can't see the whole GIF before saving and sending it.



And the winner is...
KAMCORD – LIVE MOBILE GAME VIDS

If you are a gaming fan then Kamcord is by far the better option for recording your gaming and sharing it with friends. However, for general use Screen Recorder is a good option as Kamcord is stuck to recording only games. More effort has gone into the design of Kamcord too.

From the makers of **Android** magazine



THE SAMSUNG Galaxy BOOK

VOLUME 6

Unleash the power of your Samsung Galaxy device, whether it's an S6 Edge, a Tab or a Note, the Samsung Galaxy Book is suitable for all Galaxy devices. Pair with your Android Wear, and unlock the potential of your device.



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FIFA 16

Can you build the ultimate team?



From the splendid soundtrack to some impressively detailed three-dimensional match visuals, FIFA is as polished as a silver trophy – on the exterior at least. While the graphics aren't quite up to home console standard, the player likenesses are good enough to be recognisable and they're smoothly animated. Of course with FIFA you get the genuine team, player names, badges and stadiums so it feels authentic.

The match action is good too; FIFA 15's ill-advised emphasis on gesture-based gameplay is gone, now to be replaced by a standard on-screen thumbstick and context-sensitive buttons. Noticeably improved player agility includes smaller turning circles and the skill to dribble at speed. While there's the odd lack of precision or finesse and the slide tackling is a bit hit and miss, on the whole players do what you tell them. If you need a



Good chemistry between players is a key factor for a successful squad



Goal! The visuals of the match action look superb

breather or prefer a more management-focused role then you can just release the controls and let your players roam. The AI players are much improved with their ability to move forwards into open space, make intelligent runs, mark players and track back.

So the match action is fine, what about the rest of the game? Well, it all takes place in Ultimate Team mode where you build up your club's squad by collecting player cards – earned or bought via IAPs. One interesting aspect is the focus on

player chemistry: while this is related to putting players in their favoured position and formation, it improves when you have players from the same (real-life) club, league or nation. Since chemistry is so important and overrides other statistics, it skews the player scouting somewhat and makes building a successful squad that bit harder. This is particularly the case if you don't like to buy IAPs, since in-game currency is hard earned and the prices for premium player packs are astronomical. The Live Transfer

Market may prove cheaper, but it requires you to log in with Facebook and the option to exchange ten spare players for random replacements is a big gamble. On the plus side, the introduction of online seasons – in addition to single-player seasons and tournaments – is welcome, enabling you to play against real people online.

» Price Free + IAPs
» Designed for Phone and tablet
» Requires Android 4.4 and up



what we've been playing



Power Ping Pong
£0.08/\$0.10

If you mix table tennis with kung-fu-style special moves and oddball opponents, the result is the great Power Ping Pong. Now we are used to the nuances of swipe controls, we're hooked.



Pokémon Shuffle
Mobile Free + IAPs

While we have some reservations about the lower coin rewards, this Pokémon-themed match-three gameplay is well designed. We really want to catch them all!



Recommend a game...

» twitter
@lgrobot



Eternity Warriors 4

Action-RPG clunk and grind



Along with enhanced graphics, the fourth instalment in this long-running series gives you instant access to three character classes: Warrior, Assassin and Mage, but there are still no customisation options. The familiar combat sees you using the left virtual stick to move your hero while activating attacks with the buttons on the right. Special abilities have a cool-down timer, so you'll need to use them wisely and take evasive action when



Battle with an optional sidekick and rack up combos to defeat the dull AI

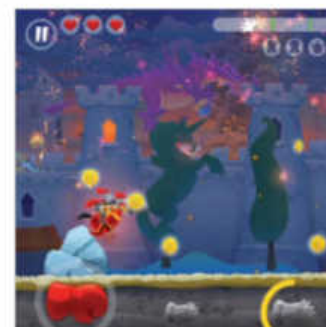
waiting for a recharge. On the other hand, the enemy AI aren't very impressive and they sometimes just stand still. Naturally there's a lot of treasure collecting, levelling up and weapon upgrading aided by IAPs. As is the current trend, an MMO lets you

team up with another player's hero to help you out in quests.

» Price Free + IAPs
» Designed for Phone and tablet
» Requires Android 3.0 and up



Games not to miss



SirVival Free + IAPs

This side-scrolling runner casts you as a brave knight riding on horseback, avoiding hazards and bashing enemies using a comic lance tipped with a big red boxing glove. It's good fun with cool cutesy visuals.



A Moon for the Sky Free

The interesting gameplay mechanic sees you drawing elastic lines to repeatedly bounce a moon up through vertical stages. It takes a while to get the hang of the controls, but it eventually proves quite addictive.



Swords & Crossbones £2.99/\$4.99

Ahoy there, a turn-based tactical RPG without the usual freemium model! Build up your pirate island and go on ocean voyages with your crazy crew in this enjoyable madcap adventure.



Downton Abbey: The Game Free + IAPs

Fans of the television show will appreciate the inclusion of familiar characters, but we were hoping for a proper adventure story rather than a hidden objects game looking in various rooms of the house.



Beacon 38 £2.29/\$2.99

Navigate your tiny scout spaceship through a dangerous alien world using sonar pinging to detect hazards in your way. It's a unique gameplay mechanic and the art-deco visual style is captivating.



Order & Chaos 2: Redemption Free + IAPs

This MMORPG sequel features an open world to explore. Enhanced features include new environments, a gear-crafting system, a new Kratan race and the option to roam solo in the dungeons.



Need for Speed: No Limits

Always out of gas

Just how many currencies do you need in a free-to-play game?

We counted at least four here. In addition, No Limits was the ironic subject of news headlines back in January when it was revealed that players would be charged for gas. It turns out it's just a variation on the typical energy system that costs (slowly refilling) gas to play each stage. However, considering that races typically last around 30 seconds, this can seriously limit your daily playing time. You may well be tempted to resort to IAPs for this, as well as for avoiding the long grind to unlock new cars. It's a shame because once you do get behind the wheel the racing action is very good indeed, featuring slick graphics and responsive car



The racing action is good, but there's too little of it

handling. Control is very simple: tap the left or right side of the screen to steer and swipe up to trigger a nitro boost. In the tradition of Need for Speed, various event types include one where you need to smash through police road blocks. If only No

Limits could escape from its freemium limitations.

- » Price Free + IAPs
- » Designed for Phone and tablet
- » Requires Android 4.0.3 and up

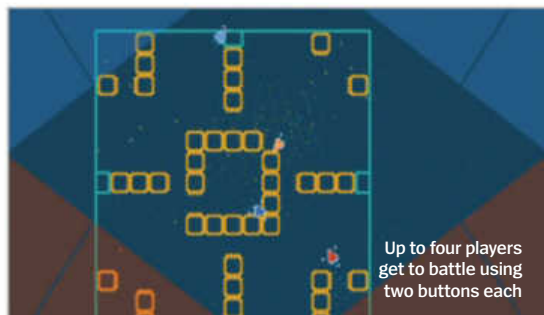


Astro Party

Multiplayer battles on one device



Astro Party sees up to four players competing in retro battles on a single device. To save screen space, each player uses just two buttons for control: one to fire and the other to turn the ship (double-tap this one to dodge). The action is of the classic duel type as players chase each other around arenas, negotiating barriers and avoiding environmental hazards such as lasers and tanks. There are also collectable power-ups: Laser, Joust, Proximity Mine and Reverse All. Three game modes add some variety too, as well as the standard Headhunter Duel mode and a two-on-two Team Deathmatch option. There's also a Pilot Execution mode where a pilot is ejected from a ship and you need to kill him before he generates a new ship. While the action and graphics are basic, it offers some fun multiplayer melee.



Up to four players get to battle using two buttons each

- » Price Free
- » Designed for Phone and tablet
- » Requires Android 2.3 and up



Freeze! 2 – Brothers

There's double trouble with two balls to juggle



Like its predecessor, this captivating physics-based

puzzler sees you swiping to spin each platform to guide an alien eyeball safely to the exit. However, the addition of a second eyeball, its brother, complicates matters considerably. The ability to freeze either eyeball and make it hover in midair is often key to solving the level. For instance, you can then rotate the level to drain away the beautifully animated water, then spin it back and let your ball drop directly onto a switch or teleport. Indeed, every fifth stage rotates automatically, so you have to use your freezes wisely. Since each eyeball can activate a particular switch type, you often have to juggle them around the stage to get them in the right positions. With limited freezes available and plenty of hazards to avoid, it can get very tricky. Fortunately, if you fail a stage ten times, you can skip it.



In this creepy sequel, you need to guide two eyeballs safely to the spiral exit

- » Price £1.39/\$1.99
- » Designed for Phone and tablet
- » Requires Android 4.1 and up





Swipe or tap to jump between platforms and rescue the HoPiKo

HoPiKo

Can you save the world of gaming as we know it?



Gaming has been dead for years. At least according to the scene-setting

introduction to this pixel-art platformer. The tiny HoPiKo creatures that live in consoles and make them work have been enslaved by the Nanobytes virus, rendering the game machines completely useless. The solution is to release the imprisoned HoPiKo on a series of platform stages. You only get a few seconds to rescue them on each stage so the gameplay is very twitchy with hardly any time to think. Simple controls involve swiping to aim your character's jump or just pressing and releasing to time it perfectly. Either way, you need to get him to hop between platforms to reach the HoPiKo in time. Some levels also contain bonus tunes to unlock for the chiptune soundtrack.

Instant death is everywhere, from exploding platforms to collisions with moving hazards. While lives are infinite, die and you're sent back to the start of the current group of five stages, so it can get a bit frustrating. However, it's also extremely addictive and the option to watch a replay of a failed stage can help you figure out what to do next time.

- » **Price** £2.99/\$3.99
- » **Designed for** Phone and tablet
- » **Requires Android** 2.3.3 and up



» like this? try this!

RETRY » Precision timing is required as you tap the screen to fly a stunt plane around each level.

Raywar: Pandemonium

A real blast from the past



Like so many other twin-stick shooters that take inspiration from the Geometry Wars games, Raywar: Pandemonium is a classy affair with much to appreciate.

The over-the-top visual effects are a feast for the eyes and the slick synth soundtrack also adds to the great retro ambience.

Three main modes provide a good range of game options. Survive mode offers four variants: Chaos, Minefield (with no weapons), Waves and Die Hard, in

which the aim is simply to survive wave after wave of enemies. On the other hand, the Stages mode requires you to reach the target score to proceed to the next level. Co-op is a two-player mode requiring two external controllers.

In all of these game types, the main shoot-'em-up action is pretty similar. You move your ship around with the left stick while aiming its blasters with the right stick. Fortunately, you can reposition the on-screen sticks to your preference; we'd also recommend the Auto



Smash your ship into those red hexagons to unleash a blast wave

Pause option that triggers whenever you release the screen.

Destroyed enemies leave behind frags for you to collect to multiply your score and increase lives. As you level up, you unlock new abilities – such as turrets and smart bullets – and alternative ships. Since these can be used on subsequent attempts, there's a good incentive to keep playing. If the default Hard mode proves frustrating, switching to Easy provides some respite and lets you learn tactics for dealing with certain foes. For instance, flying into the red hexagons releases you from their tractor beams while destroying nearby enemies in the blast.

The Stages mode currently only features 14 stages plus a boss, so we hope the developer will expand this at some point.



The eye-boggling vector visuals are over the top, but we love them

Rugby Nations 16

A bit of a rough simulation



With its numerous phases of play and complex rules, Rugby isn't the easiest

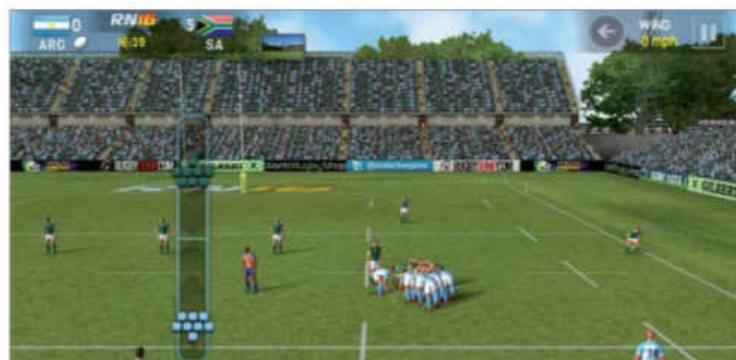
sport to simulate. Rugby Nations 16 is a decent attempt, although unless you fork out £3.99/\$4.99 to unlock the full game – whose seven modes include World Cup and Career – you'll be limited to a friendly half-match between two set teams. The controls work fairly well, combining tilt control for player movement and gestures for various actions. For instance, just tap or hold either side of the screen for a short or long pass respectively. Upward swipes are used to add more players to a ruck or add momentum to a scrum. Since swipes are also used to kick the ball,

this can result in an accidental boot way up the field. Still, since the AI opponents don't appear to have that much between their cauliflower ears, mistakes don't often prove too costly in the gameplay.

- » **Price** Free + IAPs
- » **Designed for** Phone and tablet
- » **Requires Android** 4.0 and up



Swipe repeatedly upwards on the screen to win scrums and rucks





» specification

Price **£0.88/\$1.12**

Designed for Phone and tablet

Requires Android 4.2 and up

» verdict

Performance

Design

Value

It's phenomenal value for the low price and it provides a lot of fun



2 hour wonder

Want your money back?
You've got 2 hours to decide!



» **0-40 minutes** Like many others out there, it looks a lot like Geometry Wars



» **40-80 minutes** It plays a bit differently to normal, but we like it anyway



» **80-120 minutes** Unlocking new abilities and ships adds to the fun

keep **refund**

Shoot everything that moves and collect the frags left behind

» like this? try this!



Geometry Wars 3: Dimensions

This stonking shoot-'em-up is a bit more expensive.

Heroes Reborn: Enigma

Challenge your special puzzle-solving powers

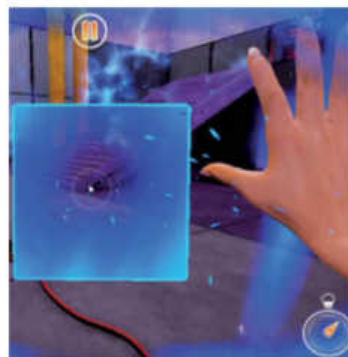


Fans of *Heroes*, the sci-fi show, must be delighted about its return to US

television screens after five years in the form of the *Heroes Reborn* mini-series. As a spin-off from that, this game is a first-person three-dimensional puzzler that reminds us of the classic Portal. You play the role of Dahlia, using her special powers – including time shifting and telekinesis – to solve puzzles over 30 stages. It all runs smoothly thanks to the use of the Unreal Engine 4.

Following an introductory scene where you find Dahlia imprisoned in a

secret government facility, a brief tutorial guides you through the controls: swiping to control the camera and tapping the ground to walk or jump to a position. Classic puzzle devices are used, such as dropping or throwing crates onto pressure plates to raise platforms and open doors. As you progress, Dahlia discovers new abilities including slowing down time (so you can make it through closing doors) and shifting time periods to collect crates or negotiate otherwise quite impassable hazards.



Drop this crate on that pressure pad to hold the connected door open

» Price £3.84/\$4.99

» Designed for Phone and tablet

» Requires Android 4.2 and up



» like this? try this!



PORTAL » Only available for Nvidia Shield on Android, the classic Portal is outstanding.

quickhits

5

top games for...

Role-players



Battleheart Legacy

£3.12/\$4.99

While offering far more depth than the original Battleheart, Legacy is an ideal introduction to the RPG genre. Cute cartoon graphics add to the appeal and the real-time combat is fun.



Icewind Dale: Enhanced Edition

£6.34/\$9.99

This HD update of the classic PC game provides a vast adventure. It's a combat-heavy RPG for hardcore fans who should also check out the Enhanced editions of Baldur's Gate I and II.



Star Wars: KOTOR

£7.78/\$9.99

The full Knights of the Old Republic experience on mobile provides an epic role-playing experience. As a Jedi, you get to learn new Force powers and choose your own path – will you embrace the Dark Side?



Evoland

£3.49/\$4.99

This adventure borrows ideas from classic RPG as it takes you through the history of the genre from monochrome to three-dimensional graphics and from turn-based battles to real-time boss fights.



Joe Dever's Lone Wolf

Free + IAPs

Based on the fantasy-game books of the author Joe Dever, Lone Wolf offers a rich story-driven experience with some very intense combat action and robust crafting, delivered in IAP episodes.



Android magazine BUYER'S GUIDE

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TOP 10 SUPER SMARTPHONES THE BEST FLAGSHIP AND MID-RANGE ANDROID PHONES ON THE MARKET

1		Samsung Galaxy S6 Samsung has come out fighting after the humdrum response to the S5, with this stunning handset made entirely of metal and glass. Samsung has had to sacrifice microSD support and a removable battery to make it so thin and light to hold, but it offers a 16MP camera, wireless and superfast charging, an improved fingerprint scanner and a benchmark-beating processor instead.	£479  See issue 52	
2		Nexus 6P Finally, we have a Nexus that is truly a device without compromise – a worthy flagship for Android heading into 2016. The camera is one of the best in the business, while the beautiful screen could truly see the end of your tablet use. Even the 64GB model represents a real bargain.	£449  See issue 58	NEW ENTRY
3		LG G4 The LG G4 is a close second for the phone of the year behind the Galaxy S6 with a distinctive leather-back case and superior camera. Its unique Quantum IPS screen will amaze with bright and crisp images that offer vivid colours, while its 200GB microSD port offers lots of extra storage.	£372  See issue 52	GOING DOWN 
4		Sony Xperia Z5 It's another device that prioritises evolution over revolution, but that's not to say Sony's fifth-generation Xperia handset is a dull affair. The cameras are arguably the best we've ever seen, while it ticks every specification wishlist. It's waterproof and dustproof too, but it does come at a price.	£549  See issue 57	GOING DOWN 
5		Moto X Style Although it isn't a direct replacement for the second-generation Moto X, the Style is a step up in terms of specifications (bigger battery, more RAM, better screen resolution and a hexa-core processor). The screen really is a sight to behold and the design is cool and edgy. It's superb value for money too.	£399  See issue 57	GOING DOWN 
6		HTC A9 The M9 remains a great device, but the A9 feels like a change in direction for HTC. Taking on board criticisms of its flagship device, HTC has kitted the A9 with bleeding-edge specs and even shipped it with Android Marshmallow. As you'd expect, the build quality is of the highest order.	£449  See issue 58	NEW ENTRY
7		HTC One M9 We marked the M9 down for only being a very minor update on the M8, but it is undeniably a superb phone. Underneath its elegant silver and gold chrome shell, it houses a superfast Snapdragon 810 processor, 20MP camera, 3GB RAM, 32GB memory and some clever customisation tools.	£579.99  See issue 50	GOING DOWN 
8		Moto X (2014) The second-gen Moto X remains a contender for best phone despite only launching last year. It offers a stock Android experience with a 13MP camera, 15-minute Turbo charging, but is much cheaper than the Nexus 6 that has the same features. Its other specs are starting to look a bit dated though.	£268.27  See issue 45	GOING DOWN 
9		Samsung Galaxy S6 edge+ The obscene 4GB RAM highlights Samsung's new premium 5.7-inch phablet. The gold design will turn heads, while the shortcut panel on the right edge of the screen will quickly have its converts. You get the usual brilliant Samsung cameras, a 20 per cent bigger battery than the S6 and wireless charging.	£629  See issue 57	GOING DOWN 
10		OnePlus 2 The OnePlus 2 might not be the 'flagship killer' it has claimed to be, but it remains an improvement on the original model. It is brilliant value for money thanks to its top-tier specs and premium design finishes. The USB Type-C connector shows OnePlus to be a forward-thinking company too.	£289  See issue 56	GOING DOWN 

In case you missed it... **Top budget tablets** Read more in issue 46

 **Nexus 7 (2013)**
 » Price £99.99
 » Website store.google.com

The Nexus 7 has certainly stood the test of time and still contains one of the best displays and user designs we have ever seen.



Gigaset QV830
 » Price £59.99
 » Website gigaset.com

The QV830 has pros and cons. It may be the cheapest of the group, but you can pay out just a little more for a much better experience.



Vodafone Smart Tab 4G
 » Price £124.99
 » Website vodafone.com

No groundbreaking features here, but suitable for anyone who wants a solid, well-built and fast device that gets the job done correctly.



Tesco Hudl 2
 » Price £99
 » Website tesco.com

The Hudl 2 set a very high benchmark for other budget tablets to follow. If you consider the discount off the RRP, this is an absolute bargain.



Buyer's Guide

TOP 10 BUDGET BUYS IF YOU'RE SHOPPING FOR A SMARTPHONE ON A SHOESTRING, CHECK OUT THESE LOW-COST MOBILE MUST-HAVES

1		Vodafone Smart ultra 6 Our newly crowned best budget phone in the world marries excellent specs and a smooth user experience to topple the ZTE Blade S6 back into second place. We love this phone's octa-core processor, 1080p screen and 2GB RAM – specs you'd expect to see in a premium handset. Throw in the fact it looks good and the cameras work brilliantly, and you've got a serious bargain.	£115  See issue 56	
2		ZTE Blade S6 While its price puts it at the top end of what we would call a budget phone, the Blade S6 is the best ZTE Blade in years. It runs Android Lollipop, has a 64-bit Snapdragon processor, 2GB RAM and the exact same IMX214 camera as the Sony Xperia Z3 – which costs around three times as much!	£149.95  See issue 50	
3		Xiaomi Redmi Note 2 If you're willing to import your device then you can save a lot of money – as Xiaomi's Redmi Note 2 proves. For a stunning price you will get an octa-core processor, 2GB RAM and a lovely 5.5-inch, 401 ppi screen. It's an incredible phone, but it is heavily skinned and hard to get hold of.	£115  See issue 57	
4		Wileyfox Swift The Wileyfox Swift is excellent value for money and good fun too. It matches its rivals in the market with a 5-inch HD screen, 2GB RAM and a five-lens camera enclosure, perfect for taking photos in low light. Cyanogen 12.1 proves to be an authentic alternative to stock Android.	£129  See issue 56	
5		Moto G (2015) The newly updated third-gen Moto G (2015) model doesn't offer the same metallic finish as the ZTE Blade S6 or Alcatel OneTouch Idol 3, but you can personalise its design before you buy, like you can the much more expensive Moto X. It is also waterproof, offers 4G and has a dual-flash 13MP camera.	£159  See issue 55	
6		Moto G 4G (2015) Now that the regular Moto G and Moto E have been updated and both offer LTE, this handset doesn't offer much except that it's slightly cheaper than the Moto G (2015). It also looks very similar with a 5-inch screen, booming dual speakers and vanilla Android 5.0.2, but it only offers an 8MP camera.	£139.99  See issue 51	
7		Moto E (2015) The second-gen Moto E is nipping at the heels of the Moto G for the title of Motorola's ultimate no-strings-attached smartphone. It also offers 4G and has Android Lollipop built in, with the added promise of an all-day battery. But its 5MP camera, bulky size and poor display reflect its budget price.	£109  See issue 54	
8		Asus ZenFone 5 While it is one of the most expensive phones in our budget buys chart, the ZenFone 5 offers an awful lot for less than most mid-range phones. A stylish metal design is available in a range of colours, it has a sharp 5-inch screen, powerful Intel Atom processor and an 8MP shooter with a range of modes.	£149.99  See issue 48	
9		Honor 4X The biggest and best of the mid-range Honor phones, the 5.5-inch Honor 4X has a lot going for it, including a 13MP camera, off-brand octa-core processor and 4G connectivity. However, you pay for the high specs at a low cost in other areas: it only runs Android 4.4 KitKat and has a mediocre screen.	£148.86  See issue 53	
10		Sony Xperia M2 Aqua Just like Sony's flagship Xperia Z5, this mid-range marvel is waterproof up to at least 1.5 metres. Sony's other top feature is here as well with an 8MP rear camera and a suite of photography tools. The only downside is that after you factor in all the preloaded apps, it only has 4GB of storage.	£150  See issue 48	

In case you missed it... **Music making apps** Read more in issue 57



Stagelight: MIDI and Audio DAW



» Price Free + IAPs
Interactive tutorials make this sophisticated

music-making studio extremely easy to use. Its extensive features include a DJ-style loop builder, a traditional timeline, a drum machine, a key lock and automation of track effects.



djay 2

» Price £2.99/\$2.99



Algoriddim's djay 2 app lets you mix tunes on twin turntables, including Spotify tracks (for premium subscribers). The app has extensive DJ tools including samples, effects, key lock and a waveform view to make it one of the best music makers out there.



Audio Evolution Mobile Studio

» Price £4.49/\$6.99 + IAPs



This virtual music studio offers multi-track recording with some cool sounds and effects, including time stretch and pitch shift. As well as virtual instruments, it supports over 250 USB and MIDI interfaces.



Oscilab – Step Sequencer

» Price Free + IAPs



If standard studio apps befuddle you, give this 'groovebox' a try. Fiddle about with the waveforms, effects and drum/note patterns until you like what you hear. A Pro version (£7.63/\$9.99) offers some extra features.



TOP 10 BEST TABLETS WHETHER YOU'RE LOOKING FOR A SEVEN OR TEN-INCH DISPLAY, THESE ARE THE TOP TABLETS AVAILABLE ON ANDROID

1		Sony Xperia Z4 Tablet Sony's lightest and brightest tablet ever, the Z4 has made us fall back in love with the 10-inch tablet when the Nexus 10 left us cold. With a clip-on keyboard and Microsoft apps bundled in, it is a top tablet for when you want to set up a mobile office. But all work and no play makes for a dull device, so the Z4 also supports PlayStation Remote Play and has a crisp 2K display screen, a Snapdragon 810 processor and 3GB RAM to ensure it can keep up with console-quality frame rates.	£505  See issue 54	
2		Sony Xperia Z3 Tablet Compact If the Xperia Z4 is an iPad killer, the 8-inch Z3 has the iPad mini in its sights. Weighing just 270g, it's slim and stylish like its bigger brother, with 3GB RAM and a Triluminos display to boot. It also integrates with the PS4 so the only real difference between the Z3 Compact and the Z4 is its size and price tag.	£269  See issue 46	
3		Google Nexus 9 A mighty Nvidia Tegra K1 processor and 2GB RAM mean that even running the most graphic-heavy games won't slow this 64-bit tablet down. The built-in BoomSound speakers also offer great sound quality, making Google's new tablet an all-round media consumption device.	£299  See issue 45	
4		Samsung Galaxy Tab S 10.5 Ultra thin and ultra bright, colours look vibrant and details distinct on this powerful Super AMOLED screen. Samsung's iPad slayer also puts many other Android tablets to shame with a multiwindow mode to display several apps at once and octa-core processor ensuring lightning-fast performance.	£349  See issue 43	
5		Sony Xperia Z2 Tablet Arguably one of the most portable 10-inch tablets available, the Xperia Z2 Tablet is waterproof and can support a SIM card for 4G use. It is also surprisingly thin and light to carry, and includes power-saving modes to ensure longer battery life. Reasonably high-spec, it has a whopping 3GB RAM.	£309.95  See issue 39	
6		Tesco Hudl 2 This sequel to the supermarket chain's own-brand tablet can't compete with premium models, but sets a new benchmark for budget tablets. Upping the display size from 7 to 8.3-inches, the Hudl 2 also runs Android 4.4.2 KitKat and can handle anything you throw at it thanks to an Intel Atom processor.	£99  See issue 44	
7		Samsung Galaxy TabPRO (8.4, Wi-Fi) The smallest tablet in Samsung's collection, the TabPRO 8.4 proves that good things do come in small packages. A stunning 359ppi screen puts the Nexus 7 to shame, though we'd prefer higher-quality speakers. However, an 8MP camera and an intuitive interface are good compensation.	£199  See issue 38	
8		Vodafone Tab Prime 6 Vodafone's 4G tablet is the network's best own-brand device yet, shipping with Android Lollipop built in, a Snapdragon 410 processor and 32GB microSD. Obviously it also requires a Vodafone contract so we recommend buying it outright for £150 and getting the pay as you go deal with 6GB data.	£70  See issue 53	
9		Archos 101 Oxygen This wedge-shaped tablet is seemingly tilted to give you a better angle for watching videos, plus a mini-HDMI port to connect it to your TV. But we're not sure why as it has a spacious 10-inch screen of its own with full HD display and good viewing angles. Speedy ARM Cortex A17 CPU is a bonus though.	£169.99  See issue 38	
10		Amazon Fire HD 6 Despite only having a 6-inch display and a budget-price tag, the Fire HD 6 is a decent tablet for watching movies and listening to music. However, the inferior forked OS and lack of third-party app support make the Fire HD 6 hard to recommend for regular, let alone heavy-duty, use.	£79.99  See issue 46	

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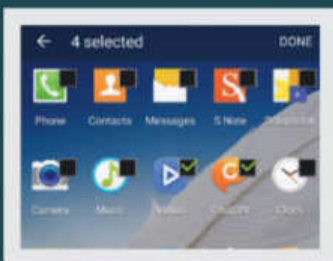
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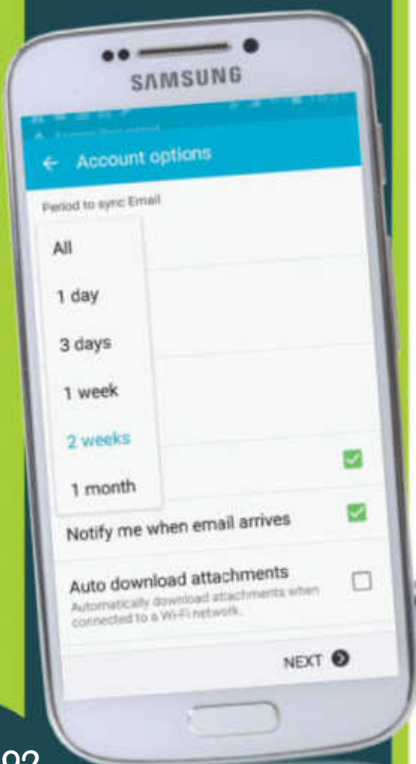
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Did you know?

It may make sense to think about removing preloaded apps from your device to save space, but the reality is that no space will be saved and reliability may suffer. Our advice is to use the Hide feature available on most devices.



Why can't I see all of my emails?

"Hi. I recently upgraded from a HTC One to the Samsung Galaxy 6. Absolutely love the new phone, but one thing that drives me mad is the apparent limitation on the number of emails the phone will retain. Most of my mail is via Hotmail and the phone will only display the last few days?" *Anthony*

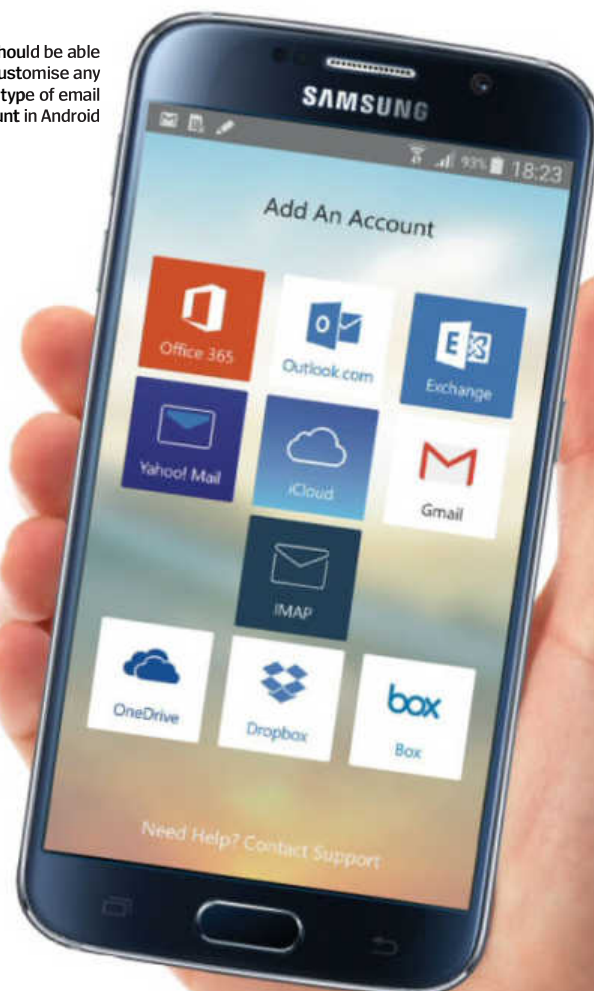
A **Hi Anthony.** This is one of those problems that should be obvious to fix, but it isn't for a number of troublesome reasons. The good news is that we have a fix for you that should solve it if you are prepared to try a new email client and possibly start over with setting up your inbox. We would first of all suggest using the email app that is bundled with Android devices. It tends to take second preference to Gmail for most people, but if you want to use a non-Google account it works well. Add your account to the app after first deleting it from your device and then look carefully at the setup screens as you progress. You should see the Account options screen that includes a Period to sync Email option. Tap this and then choose All if you want all of your inbox to display when you use the app. The problem we see is that this screen is difficult to find, but if you go to Settings>Manage accounts, tap your email account then Sync Settings>Sync Schedule, you will find what you need. We advise to delete your account and start over as we

There is no reason why you can't access all of your emails

experienced some problems getting the sync to work afterwards. You can also use the Outlook app from the Google Play store, but again we

struggled to find the relevant screens to set everything up in a fully customised way. So we would advise you to use the email app for now.

You should be able to customise any type of email account in Android



Ask your questions

Got a problem with your Android phone or tablet?
Send it to us and we'll find the solution

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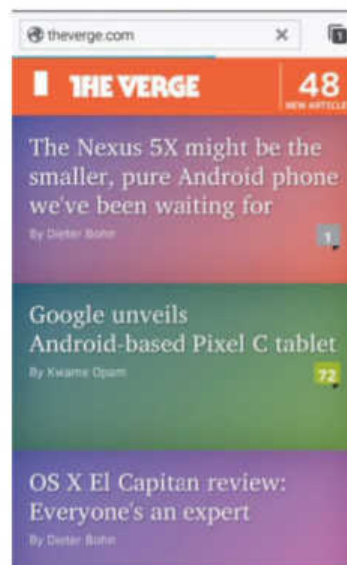
qa@littlegreenrobot.co.uk
Send your questions for our team of
experts to tackle

Can I stop adverts and tracking when browsing?

"Is it possible to stop websites from tracking me and showing adverts that ruin the browsing experience? This seems to be very popular on other platforms at the moment and I would like to try it on my Android phone." *Martin Chewters*

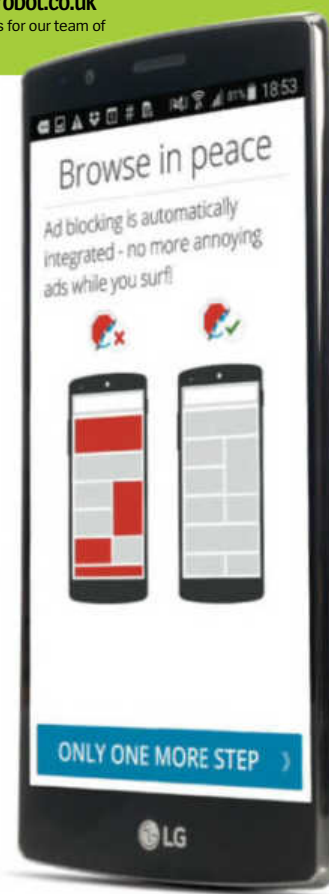
A Hi Martin. It is indeed possible to do this and we would suggest going to Google Play and installing Adblock Browser for Android. The process to set it up is simple and the app claims to handle adverts and websites that track you as well as offering many other features to help improve the experience. Once you try an ad blocker, it is true that browsing will speed up immediately and there are many positive reasons to use one, but you try to maintain some control over the process if you can. If a website only offers subtle

adverts that don't track you then we would suggest letting them display as they will not significantly slow down your browsing. You need to remember that most websites and their content is paid for by adverts. If we all started blocking these adverts we would have no good websites to browse. It is of course up to the websites to serve adverts that do not dominate the experience and to use tracking that is not too intrusive, but we do not want to penalise the good sites and lose them forever so if possible, please try to use any blockers responsibly. Like so



Your browsing speeds could improve dramatically when using an ad blocker

many advances on mobile platforms today, Android always seems to be able to offer a competitive feature and this is no exception. Enjoy your new faster browsing experience!



Apps like Adblock Browser can help to hide adverts when browsing

hints & tips

Get more from your Android Wear watch with our handy hints

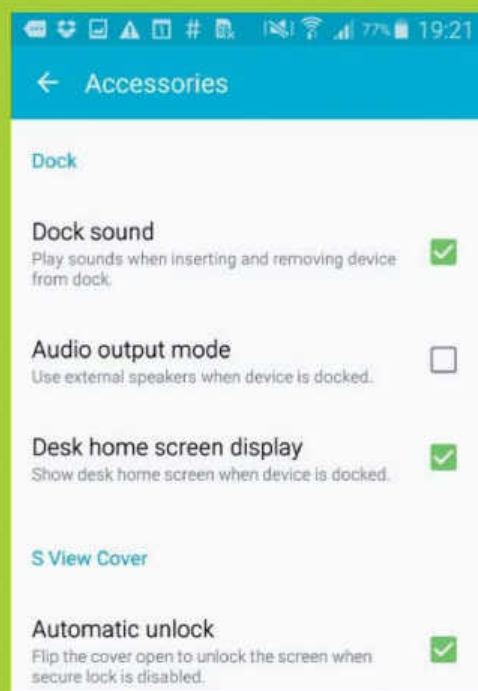
Enable automatic updates

1 If the option is available in Settings, tick for software updates to install automatically over Wi-Fi. It's very rare they will cause harm or instability and will almost always improve your Android experience.



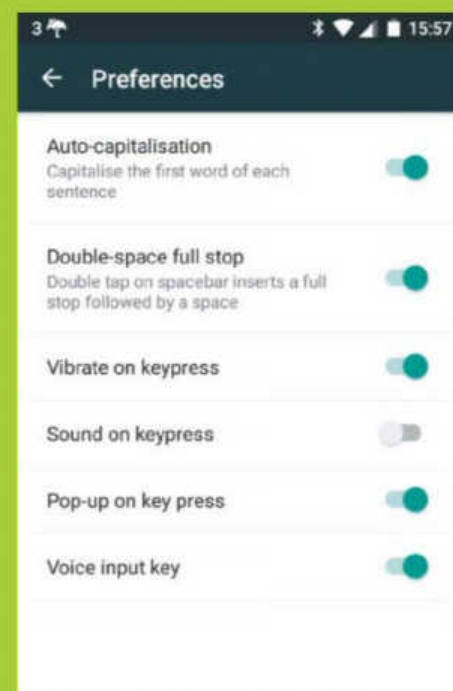
Screen turning on randomly?

2 If you own a Samsung phone and the screen turns on randomly, go to Settings>Accessories and go to Automatic unlock. Untick if you don't have an S View Cover and the problem should be resolved once and for all.



Turn off keyboard sounds

3 Turning off keyboard sounds is not an obvious option. Go to Settings>Language and input, then tap the keyboard you are using, an option for Sound will appear. The keyboard will stay muted until you change it.



Can I root my budget tablet?

I have a tablet that I need to root, but it won't even let me write to the external SD card. I have done a lot of Googling, but no joy. Any advice would be much appreciated. Model: IT-1101-QUAD, Android version: 4.4.2.
Phil Davidson

A Hi Phil. We searched and searched for information on how to root this tablet, but it was a struggle to even find this particular model listed anywhere. The problem with budget tablets is that they are often built to a price, which means that the hardware is behind what you may expect

today and, consequently, they tend to have an older version of Android loaded. A preference to bundle a bespoke app store is also common which causes all sorts of other problems and so all of this comes together to make it much more difficult to customise the device. For once we are stumped and while it is likely technically possible, the potential downsides are great without full knowledge of the device in question. Our advice would be to purchase a branded tablet if you can.

Android Pay and the Moto X Play

I need to upgrade my Nexus 4. I would buy the Moto G 2015 tomorrow. But no NFC! I would buy the Wileyfox tomorrow. No NFC! Now I find I am so torn between the Moto X Play and the Nexus 5X. Just one question for you, if I buy the Moto X Play, will Android pay work without a fingerprint scanner?
Harry Francis

A Hi Harry. Good news! You do not need a fingerprint scanner to use Android Pay because you can also use a PIN code, pattern or password to authenticate who you are. Provided you have an Android phone that is running at least version 4.4 and has NFC, Android Pay will work exactly as you want it to so it's possible that this will increase your phone purchase options. It uses tokenisation to ensure top-notch security and the rest will be down to you to ensure that nobody is aware of your security setup and that they do not get hold of your phone. Choosing between the Nexus 5X and the Moto X Play is likely the hardest decision you will face here, but as they both have NFC and can run Android Pay, you will be upgrading your Android experience in a big way no matter which one you choose.



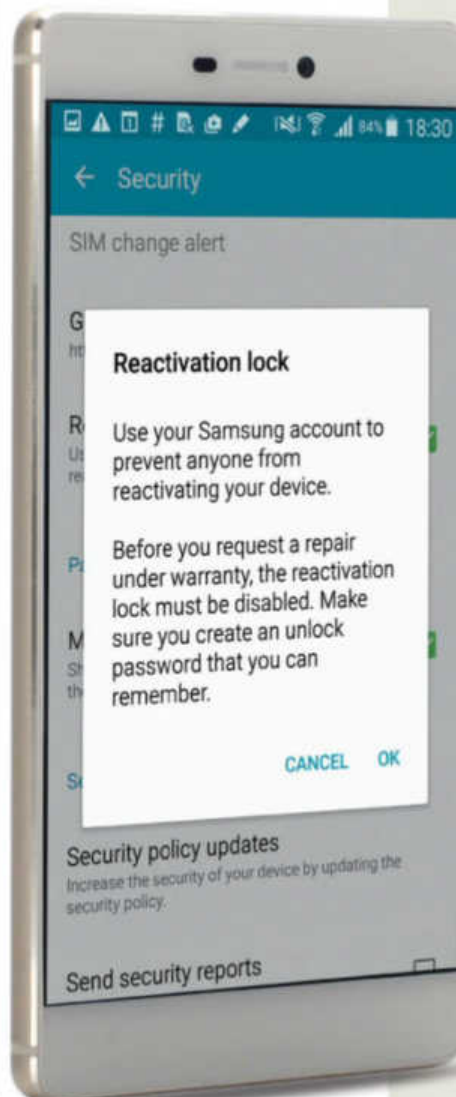
Android Pay works on many different devices, even without a fingerprint scanner. Take a look at our review of the Nexus 5X in this issue and hopefully it will give you some pointers as to which device is best for you.

"You will know exactly what to do?"

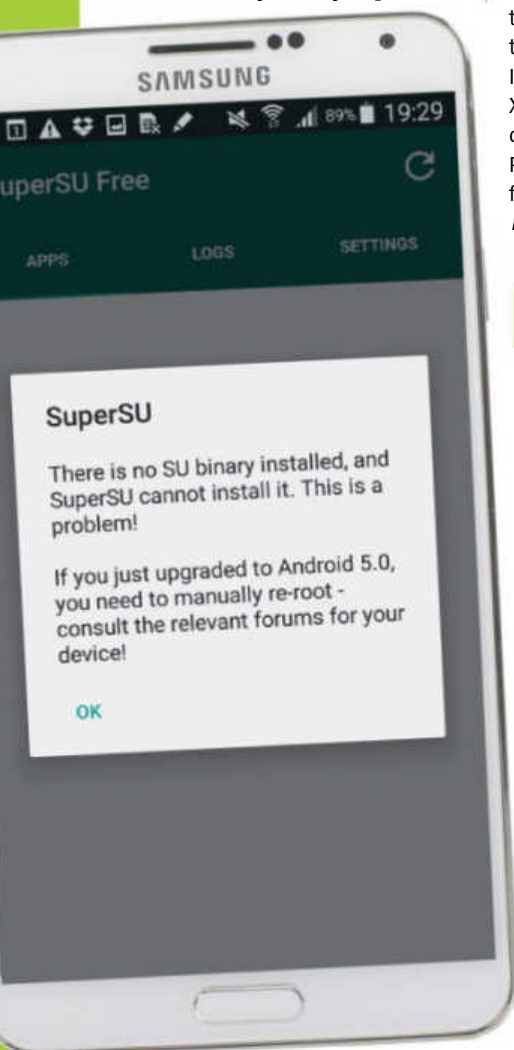
How safe is Android?

A I have just bought an Android phone and am worried by all of the scare stories I have read on the web. Are there really thousands of apps that can steal my data and is the platform safe in general? I am starting to wonder if I would be better off using an iPhone, so some convincing words would be nice to hear.
Marie Black

Hi Marie. We can understand your concerns because certain parts of the press seem to love writing about Android security issues, but the reality is that you have full control over how secure your phone is and Google has done a lot of work making the Android platform as safe as possible. We will highlight some of the ways you can ensure that your data is safe at all times and because most of it is common sense, you should not have to do much work to ease your worries. Android is open platform, which is why it is so customisable and so well suited to millions of people, but this does not have to mean that it is unsafe in any major way. If you treat your device with the same care as you would any other computer, you will know exactly what to do and what logical precautions to take with your data.



Android is safe provided you take the right precautions

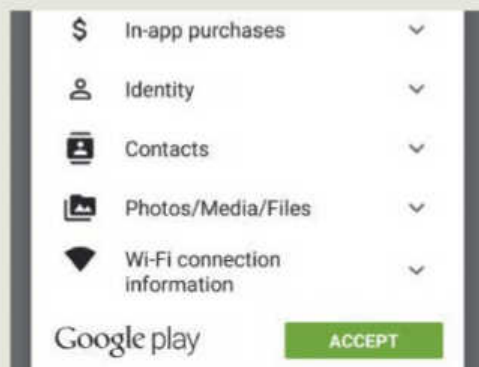


You can't root every Android device, at least not easily and without risk



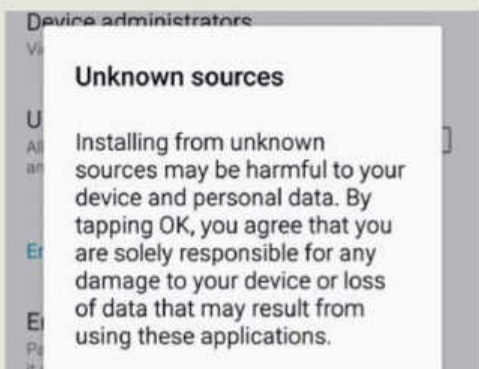
Did you know?

Horizon Camera, available from Google Play, lets you capture a video at any angle and to then automatically have it created exactly as you would want it to be. It is a simple app that performs a function we would like to see preloaded on every Android device.



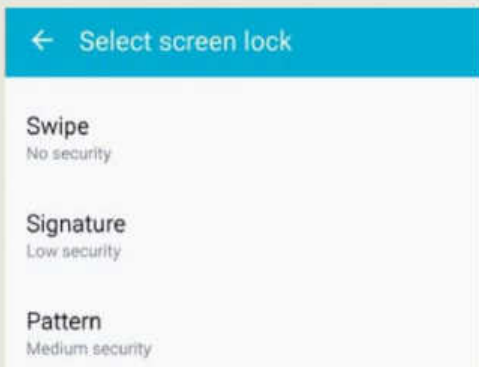
1 Check app permissions

When you are installing an app or a game, check exactly what permissions it needs. Most apps need minimal permissions, but use your common sense and you may think twice. Why would a game need to see your contacts? Why would an app need access to your calendar?



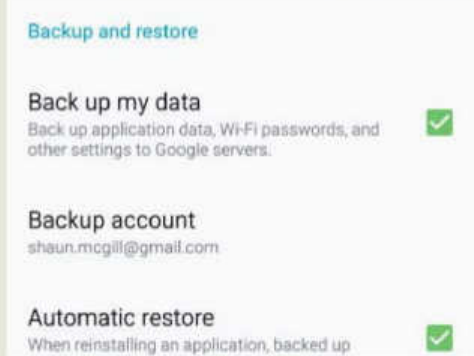
3 Unknown apps

Only ever install apps from reputable sources. Google Play is the obvious place to download apps from as it's safe, so we would advise to not even tap the option in Settings to accept downloads from elsewhere. This is crucial for ensuring your device only uses reputable apps.



5 Enable a screen lock

Always have a screen lock enabled so that nobody will be able to see your data if you leave your phone or tablet unattended. Try to use the most secure ones and remember that fingerprints can remain on the screen, which may give a clue to the PIN or pattern lock you are using.



2 Back up your data

Make sure you back up your data using Google's built-in facility that can be found in Settings. This will ensure that if your phone breaks or if you lose it, you can transfer your information to a new device quickly. Also, if you are using an expansion card, make sure you back that up too.



Go to Settings>Security> Encrypt device and follow the process to encrypt the data on your device. It is debatable as to how important this is, but if your device falls into the hands of someone who is determined to capture your data, this is by far the best defence.



6 Android Device Manager

Installing and enabling Android Device Manager, available from Google Play, gives you the ability to find a lost device and to even erase all of the data on your phone or tablet remotely. You may not use it often at all, but when it's required it will be invaluable for securing your data.

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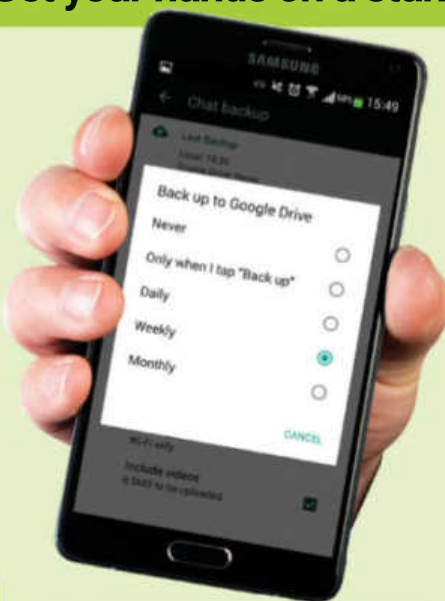


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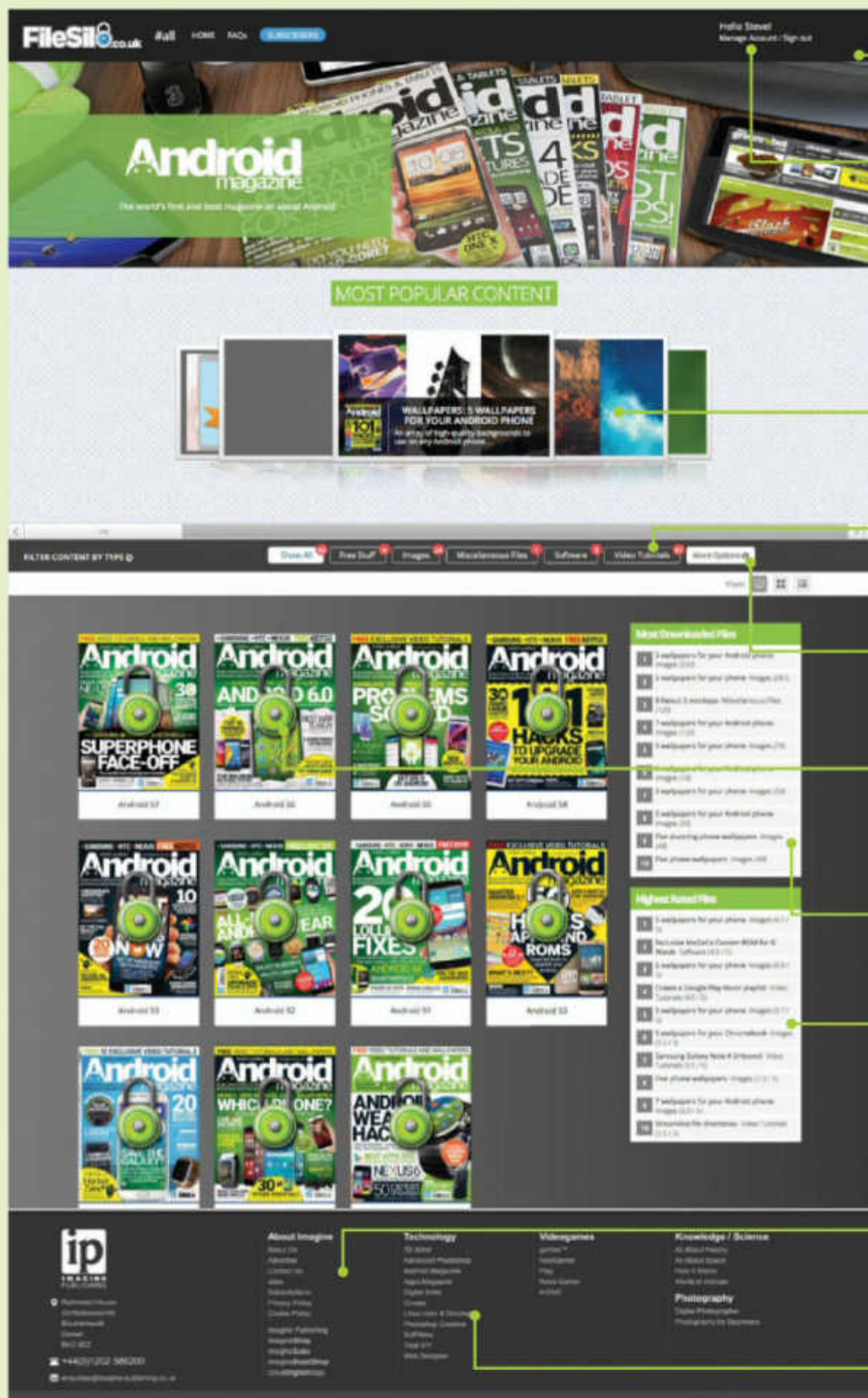
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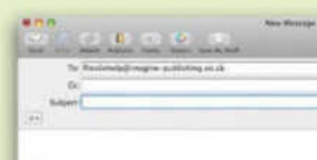


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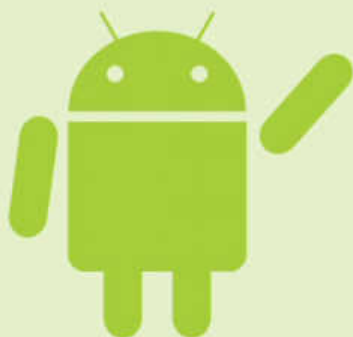
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